DOCUMENT RESUME

ED 243 657 SE 044 388

AUTHOR Storti, Craig
TITLE Forestry Case Studies. Appropriate Technologies for Development. Case Study CS-3.
INSTITUTION TransCentury Corp., Washington, D.C.
SPONS AGENCY Peace Corps, Washington, DC. Information Collection and Exchange Div.
PUB DATE Mar 82
CONTRACT 79-043-1029
NOTE 106p.
AVAILABLE FROM Peace Corps, Information Collection & Exchange, Office of Programming and Training Coordination, 806 Connecticut Avenue, NW, Washington, DC 20526.
PUB TYPE Reports - Descriptive (141)

EDRS PRICE MF01/PC05 Plus Postage.
DESCRIPTORS *Case Studies; *Developing Nations; Foreign Countries; *Forestry; Postsecondary Education; *Program Descriptions; *Program Effectiveness; Program Implementation; Science Education
IDENTIFIERS *Peace Corps

ABSTRACT

Case studies of Peace Corps forestry projects in Morocco, Nepal, the Philippines, Chile, Guatemala, Chad, Liberia, and Niger are presented as a guide in aiding future forestry programming efforts. Each case study includes: (1) general information about the specific country; (2) an overview of forestry programs and efforts in that country; (3) a description of relevant Peace Corps forestry programs; and (4) a discussion of the success and failure of those programs. (Success and failure as used in this document refer to whether a program succeeded in meeting or failed to meet its objectives.) The document concludes with a discussion of several factors that determine the success of forestry programs. These include the amount and kind of support given to projects and volunteers from the host governments and other agencies, the amount of commitment that the Peace Corps gives to the project, the legitimacy of a need for Peace Corps involvement, the history of the host country's involvement in forestry, the possibility of short-term benefits, and the amount of local interest and commitment. (JN)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

INFORMATION COLLECTION & EXCHANGE

Peace Corps' Information Collection & Exchange (ICE) was established so that the strategies and technologies developed by Peace Corps Volunteers, their co-workers, and their counterparts could be made available to the wide range of development organizations and individual workers who might find them useful. Training guides, curricula, lesson plans, project reports, manuals and other Peace Corps-generated materials developed in the field are collected and reviewed. Some are reprinted "as is"; others provide a source of field based information for the production of manuals or for research in particular program areas. Materials that you submit to the Information Collection & Exchange thus become part of the Peace Corps' larger contribution to development.

Information about ICE publications and services is available through:

Peace Corps
Information Collection & Exchange
Office of Programming & Training Coordination
806 Connecticut Avenue, N.W.
Washington, D.C. 20525
(202) 254-7386

Add your experience to the ICE Resource Center. Send materials that you've prepared so that we can share them with others working in the development field. Your technical insights serve as the basis for the generation of ICE manuals, reprints and resource packets, and also ensure that ICE is providing the most updated, innovative problem-solving techniques and information available to you and your fellow development workers.

Peace Corps

Forestry Case Studies

Written by: Craig Storti

Edited by: R. Paul Chakroff

Peace Corps
Information Collection and
Exchange
Case Study-3
September 1981
March 1982

TransCentury Corporation
1789 Columbia Road, N.W.
Washington, D.C. 20009

FORESTRY CASE STUDIES

December 1980

Prepared for the Peace Corps by
TransCentury Corporation
under Contract No. 79-043-1029

Copies available through:
Peace Corps
Information Collection and Exchange
806 Connecticut Avenue, N.W.
Washington, D.C. 20525

Table of Contents

	Page
Introduction	1
Chapter 1. Morocco Case Study	
The Country	3
Forestry in Morocco: An Overview	4
Peace Corps Forestry Programs in Morocco	4
Success and Failure	12
Chapter 2. Nepal Case Study	
The Country	14
Forestry in Nepal: An Overview	15
Peace Corps Forestry Programs in Nepal	16
Success and Failure	21
Chapter 3. Philippines Case Study	
The Country	23
Forestry in the Philippines: An Overview	24
Peace Corps Forestry Programs in the Philippines	25
Success and Failure	31
Chapter 4. Chile Case Study	
The Country	32
Forestry in Chile: An Overview	33
Peace Corps Forestry Programs in Chile	34
Success and Failure	39

	Page
Chapter 5. Guatemala Case Study	
The Country	41
Forestry in Guatemala: An Overview	42
Peace Corps Forestry Programs in Guatemala	43
Success and Failure	49
Chapter 6. Chad Case Study	
The Country	50
Forestry in Chad: An Overview	51
Peace Corps Forestry Programs in Chad	51
Success and Failure	57
Chapter 7. Liberia Case Study	
The Country	59
Forestry in Liberia: An Overview	60
Peace Corps Forestry Programs in Liberia	61
Success and Failure	64
Chapter 8. Niger Case Study	
The Country	66
Forestry in Niger: An Overview	67
Peace Corps Forestry Programs in Niger	67
Success and Failure	73
Chapter 9. Future of Peace Corps Forestry Programs	75
Factors that Determine Success	75
References	81

Forestry Case Studies

Introduction

This guide was developed to aid Peace Corps staff members who are interested in programming forestry projects. Although forestry projects are not new to the Peace Corps, today's staff members may not be aware of the history of such projects. To aid in future forestry programming, this guide examines the history of Peace Corps forestry efforts in eight countries. These case studies provide information on the objectives and activities of each program and an analysis of the success of the program. Success and failure as used in this guide refer to whether a program succeeded in meeting or failed to meet its objectives.

Each of the following chapters looks at a specific country, giving an in-depth review of the problems and successes of past forestry projects. Much of the information obtained for these case studies is the result of personal communication with returned volunteers who served in these countries. Additional information was obtained from the Peace Corps/Washington files, the ACTION Library, and from country staff members. Therefore, case studies often reflect the perceptions and views of the people involved.

Chapter 9 summarizes the factors that determine success in forestry

projects and provides general conclusions. It includes a list of criteria for planning successful Peace Corps forestry programs.

It is hoped that the information in this guide can be coupled with technical programming and training assistance and support to develop relevant Peace Corps forestry projects for the future.

History of Peace Corps Forestry Programming

The history of Peace Corps forestry programming reflects the various values the agency has lived by in its first twenty years. These values have changed several times, and each change caused changes in the objectives that were being pursued. In the 1960s Peace Corps' programs were largely of the community development, rural extension variety, betting heavily that generalists with a minimum of skill training could make a contribution to solving some of the problems of developing countries. In the early and mid-'70s the decision was made that Peace Corps' best bet was to supply trained professionals to meet the critical manpower needs of the host countries, that high-level technical expertise, not community organization, was the quickest route by which a nation arrived at self-sufficiency. Then, in the last half of the decade, a new consensus emerged, that Peace Corps' spiritual home was with the disenfranchised and the chronically ignored of the developing world. It was neither a repudiation of the technocrats nor a return to community development, but rather a realization that what Peace Corps did best it did quietly, that the objectives worth pursuing were the ones that would help the world's poor.

These changes can be traced in several of the case studies presented here; there have been successes and failures in each of those eras. When the next era is upon us, it is hoped that the history of the others will be considered and put to good use. It is in that spirit that the present guide is offered.

1. Morocco Case Study

The Country

Morocco sits astride the northwest tip of Africa and boasts both an Atlantic and Mediterranean coast. Roughly twice the size of California, the country is split in two by the Atlas Mountains, which divide the heavily populated coastal plains in the west and north from the arid, less fertile plateaus of the south and east.

Geographically a part of Africa, Morocco is decidedly Moslem and Middle-Eastern in its culture. For a good part of the present century Morocco was a protectorate of France, achieving its independence in 1956. The government, a constitutional monarchy, is presided over by King Hassan II.

The economy of Morocco is still largely based on agriculture. Eighty-five percent of the total arable land area is farmed by traditional means, although this accounts for only 15% of the country's agricultural production. Most families consume nearly all they produce. The bulk of Morocco's production comes from the modern based farm sector which grows food for export, e.g. citrus fruits, vegetables, wine and wheat. Mineral resources are also an important source of Moroccan wealth, particularly phosphates.

Agricultural production has long been the government's number one development priority and was one of the first areas in which Peace Corps volunteers (PCVs) were involved when the Peace Corps was invited to Morocco in 1963.

Forestry in Morocco: An Overview

Forest exploitation in Morocco has traditionally been indiscriminate, resulting in the necessity to import timber and other forest products. The forests have retreated before the advance of increasing population, as fuel and fodder needs have multiplied. The major problem in Moroccan forestry is animal grazing, which accounts for the deforestation of 30,000 hectares annually. Once deforested, much of this land is converted into agricultural production and is not left for grazing, thus resulting in continued grazing on forested land.

The Moroccan Forest Service has grappled with these difficulties, but suffers from a shortage of trained personnel. Peace Corps has supplied volunteers to the Department of Water and Forests since 1963 in various attempts to respond to the government's efforts to increase agricultural production, reduce the pressure on the country's forests, and develop Morocco's domestic timber industry. In all there have been three major Peace Corps forestry efforts in Morocco: 1) the surveyors program, 2) the DERRO program, and 3) the Minnesota Intern Program.

Peace Corps Forestry Programs in Morocco

The Surveyors

The first group of PCVs in Morocco arrived in February 1963 and consisted of 14 surveyors. The surveyors worked under the Department of Water and Forests (Eaux et Forets) and were assigned to various district offices under the immediate supervision of a Forestry District Engineer. The Peace Corps volunteers, all of whom had prior experience, were assigned to do low-level surveying of the type necessary for tracing contour terraces. The terraces would then be constructed to

allow for reforestation and to combat erosion. Volunteers also were supposed to work with Moroccan secondary school graduates and train them in various techniques of surveying.

The program lasted for approximately three years and received fresh inputs of volunteers in 1963 (15 PCVs). From the beginning the program was fraught with difficulties, some of which were at least partially overcome, but the bulk of which eventually proved insurmountable.

To begin with there was some question as to how anxious the government of Morocco was to have the program. There is considerable evidence to show that although the project was accepted and understood at the ministerial level, it was not carefully explained to Water and Forests officials at the district level where the PCVs would be working. As a result, the first group of surveyors experienced a number of problems stemming from inadequate preparation at the local level, i.e. long periods of idleness, an excess of busywork, a misunderstanding of their roles, and the misuse of their skills.[1] There was also some confusion as to who was in charge: was the PCV responsible to the Peace Corps or to His Majesty's Government (HMG)?

In addition, this group's training was inadequate. The PCVs were taught French, the language of the colonizers, which did little to endear them to their Moroccan colleagues. In addition, though the Boussale forestiere is the main instrument used by surveyors in Morocco, it was never used in training.

One final obstacle to the program's success was the attitude of the old and experienced foreign assistants who still permeated the Moroccan bureaucracy at all levels. These were indifferent to PCVs and, in some cases, actively opposed to

1. Kenneth Love, Morocco Country Evaluation, 1963.

Peace Corps' intrusion into what they regarded as their exclusive province.

It is small wonder, then, that at their Close of Service (COS) conference in August 1964, the first group of surveyors were somewhat bitter about their Peace Corps experience; they complained that their jobs had been inadequately developed and faulted the Peace Corps/Morocco staff for not helping them transfer out of difficult assignments. In fairness to Peace Corps/Morocco staff, however, it should be pointed out that many of the difficulties of the surveyors program were of the trailblazer variety; this was uncharted territory, the agency was inexperienced and bound to make mistakes. And it was all just as new to the Moroccans. The wonder is not that the program was beset with problems, but that it got off the ground at all.

The second and third groups of surveyors did not find their work any easier. They estimated that 40-50% of their time was spent on busywork. In addition, instead of spending time in the field surveying and training counterparts, they spent a lot of time in the district office tracing maps and doing office work. They thus felt underutilized and underemployed.

Part of the reason was lack of transportation. As originally conceived the project allowed for PCVs to use jeeps assigned to local forestry stations to get out into the field and do their work. The problem was that even when the jeeps were running, PCVs were at the bottom of the priority list.

A spring 1964 evaluation of the Morocco program concluded that while the Water and Forest Department was well run and did important work, PCVs had not been integrated into the agency and were not making a substantial contribution to its activities. The evaluation went on to question whether "semi-skilled Americans" had a "place in Morocco"

and decided they didn't.[2] Moroccans, said the report, could do what the Peace Corps surveyors were doing; if Peace Corps was going to make a contribution to Morocco, it would have to recruit people with higher skills.

One man who did not believe that, and whose skepticism was to have a profound impact on the future of Peace Corps forestry programming in Morocco, was Dr. Ahmed Chbicheb. Dr. Chbicheb was the head of the Department of Water and Forests and he was impressed with the PCVs. He liked their work and wanted more of them. He understood the difficulties they were going through at their sites, but felt that once these institutional growing pains had passed, the time would come when the surveyors would begin to make an important contribution to the Department. While his optimism did not save the program (it was phased out in 1966), his experience with the Peace Corps surveyors turned Dr. Chbicheb into a true believer and led him to carve out a large niche for these Americans in his next project, the DERRO program.

DERRO

"We have established a Peace Corps presence in Morocco, but have not found a role in the nation's development."[3] So said a 1966 evaluation of Peace Corps/Morocco. But even as that evaluator spoke, Peace Corps was about to become involved in a major new Moroccan development effort, DERRO (Developpement Economic du Rif Rural Occidental).

The origins of the DERRO program go back to a UN/FAO study of the western Rif region in 1960. The study, concluded in 1963, made a number of recommendations for "a thorough transformation of the outlook and method of the traditional economy in order to increase production and trade."[4] The Food and Agriculture Organization (FAO) of

2. Robert McGuire, Morocco Country Evaluation, May 1964.

3. Bill Tatge, Morocco Country Evaluation.

4. 1971 Morocco Country Plan.

the United Nations was then asked to design a program based on its recommendations and to assist the Government of Morocco (GOM) in implementing the program. The result was DERRO, a projected twenty-year integrated development effort, which, if successful in the western Rif mountains, would then be applied to other parts of the country. A special DERRO agency was set up in the mid '60s to coordinate the efforts of the several ministries (Agriculture, Water and Forests, Public Works) and international organizations (FAO, AID) that would be involved. Dr. Chbicheb, former head of Water and Forests, was put in charge.

At the core of DERRO was the idea of community development. Working out of local municipal offices, DERRO agents would try to establish programs in five major areas: soil conservation, reforestation, fruit growing, livestock production, and agricultural extension. The idea was that working through existing social institutions--markets, cafes, tea houses--DERRO agents could mobilize farmers and other segments of the community in support of new approaches to land use. Agricultural production became the number one priority of the Government of Morocco, and DERRO became Peace Corps/Morocco's number one priority.

From the beginning DERRO had a forestry component. In fact the first three PCVs to work in DERRO were extendees from the surveyors program. The transition was logical as the main thrust of DERRO's forestry effort was in soil conservation/erosion control/reforestation. The first exclusively DERRO/Peace Corps project began in 1967 with 15 PCVs recruited to work as DERRO agents. These volunteers were generalists who were given training in three main areas: 1) terracing and contour planting, 2) planting, pruning and general care of fruit trees, and 3) minor crops. They would have Moroccan counterparts in whom they would instill the principles of village extension work. These volunteers were followed approximately a year and a half later by a second

DERRO group in January of 1969 (20 PCVs, 7 in forestry/surveying and 12 in general agriculture). For this second group the skill training was slightly more technical to correspond to greater refinements in the nature of the assignments, i.e. DERRO agents were no longer expected to be jacks-of-all-trades, but were "specialized" in forestry or agriculture. This refinement was in response to complaints from the first group that they felt they had little to offer in terms of actual expertise and that being catalysts and/or agents of change was not, per se, very satisfying.

In spite of this attempt to adjust for earlier flaws in DERRO, Peace Corps involvement with the program over the four years from 1966 to 1970 cannot be rated a success. At a special conference held in Fez in May of 1970, 16 months after the second group had gone into the field, the DERRO PCVs met to discuss the future of their program. On the whole the PCVs were dissatisfied and did not feel that their role as DERRO agents was viable. Typical of their experience was the story of one volunteer who had been assigned to the small village of Briksha. There was, indeed, a DERRO project in that area, a tree planting/soil conservation scheme, but the site of the project was many miles away over impassable roads and there was no transportation. The volunteer ended up teaching English and first aid, and tutoring in math.

The group felt that DERRO had had its successes in various parts of the Rif, but those projects had little to do with the presence or absence of a PCV. If Peace Corps was going to make a contribution to DERRO, the PCVs said, it would not be through PCVs as DERRO people. They recommended discontinuing the program.

An evaluation of DERRO conducted that spring came to the same conclusion. The evaluation by Alfred Mathieu, a consultant to FAO who had worked on DERRO previously, noted that 1) the job of the DERRO agent was not well defined, 2) the agents, including PCVs, received insufficient

bureaucratic and technical support, and 3) the technical and academic expertise of the PCVs was not recognized.

The failure of the Peace Corps DERRO program was the result of troubles within DERRO itself. From the beginning the program had stumbled. Most observers felt that DERRO never really got off the ground until the spring of 1969, just as the second (and last) group of PCVs arrived in the country. The problem all along had been coordination. DERRO was supposed to be a super-agency that could cut through the red tape of ministerial bureaucracies and respond to the problems of certain depressed areas in the Rif. But some officials in the ministries DERRO was to work with didn't see why they couldn't accomplish DERRO's end out of their own well-established system of local Agriculture, Water and Forests, and Public Works substations. Consequently, PCVs at the local level frequently found themselves dependent on and reporting to the local Water and Forests or Agriculture official rather than to the local DERRO officer. In fact, the local DERRO officer frequently had to turn to the Department of Water and Forests for seedlings or transportation. The disorganization within DERRO quickly caught up to Peace Corps. Even as the 1969 group trained at St. Luis Obispo (and eagerly awaited a visit of Dr. Chbicheb himself), the program officer in Morocco wrote them a letter saying their sites had not yet been selected and might not be by the time they arrived in the country. Many PCVs felt their eventual assignments suffered from this lack of advance work. After that summer no more PCVs were invited to work in DERRO.

Minnesota Intern Program

Even as Peace Corps' involvement with DERRO was being phased out, a new forestry program was waiting in the wings. This third and final Peace Corps forestry effort in Morocco, generally known as the Minnesota Intern Program, reflected the change in Peace Corps philosophy that

occurred with the coming of the Republican administration and what might be called the era of the specialist.

For Peace Corps/Morocco the era began in the fall of 1970 when the first group of Minnesota Interns arrived. The intern program identified candidates in their junior year and then provided special, Morocco-specific, training for them throughout their senior year. Upon graduation the interns went through regular Peace Corps training, in this instance in Colorado, and were then sworn in as PCVs upon arrival in country. The interns came from a number of specialties; in the case of the 1970 contingent there were seven foresters.

In a sense the intern foresters arrived just in time. With the collapse of DERRO and the earlier unsatisfying experience with the surveyors, Peace Corps/Morocco was wary of using any more generalists in forestry. The time had come to try something new.

The foresters would once again be part of the Department of Water and Forests and work out of provincial offices. The difference was that unlike the DERRO people and the surveyors, the new volunteers would actually be members of the professional staff of these offices, the kind of people the other two types of PCVs had reported to. The foresters would have the same duties as any Moroccan water and forests officer, i.e. they would be "responsible for all forestry and most soil conservation work in one or several provinces."[5] Specifically, they would be involved in the planning and execution of extensive reforestation and soil conservation projects, oversee large-scale nurseries and supervise all surveying, mapping and planting. Their counterparts would be other Water and Forests officers, and they would frequently have to supervise groups of Moroccan laborers.

---

5. 1970 Peace Corps/Morocco Program Description.

The era of the intern specialists lasted for approximately seven years. What it essentially amounted to, as one PCV put it, was "a finger in the dike" between the departure of the French and the time when Morocco could train enough foresters to take over its own forest service. Each year new PCVs arrived from the intern program and were assigned to local Water and Forests officers to carry on the work of their predecessors. The nature of the work did not change appreciably throughout this period, nor was there any transfer of skills to Moroccan counterparts to speak of. Unlike DERRO and the surveyors program, there was no real village emphasis to the work but rather an orientation toward research and planning.

Within these parameters, however, the program was a success. "Forestry and conservation PCVs," the 1976 Country Program Evaluation noted, "in conjunction with other agencies such as USAID, have accomplished much in soil conservation and reforestation . . . . The time has come for withdrawal and it is being accomplished with good will on all sides." The program was phased out the next year, as it was not consistent with the new Basic Human Needs approach of the Peace Corps.

Success and Failure

The surveyors program, as noted earlier, was largely unsuccessful. The reasons:

- Lack of strong government support. Peace Corps seems to have been more interested in the program than the Government of Morocco.
- No clear understanding of the volunteers' role. Neither Peace Corps nor the Department spent sufficient time educating field personnel as to the nature of the Peace Corps and just what it was PCVs were supposed to do.
- Not enough work for the volunteers. As their role was never clearly understood, the PCVs were chronically underemployed and gradually became discouraged.

- Training errors. Volunteers should have been trained in Arabic as well as French and certainly should have been introduced to the Boussale forestiere.

- Attitude of "experts". The resistance of the foreign "experts" to the coming of the Peace Corps no doubt made itself felt in a general lack of coordination in any efforts at training Moroccans to be their own technical experts.

DERRO was likewise unsuccessful:

- The program was new. Peace Corps should have waited for DERRO to become a viable entity before becoming involved. As DERRO became more certain of its identity, the question of whether there was a role for Peace Corps would have been clearer.

- Role of PCVs poorly defined. The PCVs' mandate as DERRO agents was too broad and thus not clearly understood by local field staff. As a result PCVs were chronically idle.

- Moroccans could do the job just as well. The level of expertise the PCVs brought to their work was not sufficiently high to make them a true asset to the program. Moroccans, with a little training, could have done the job.

But the specialists' program worked:

- The role of the PCV was clearly defined. The volunteers were Water and Forests staff and had clearly delineated responsibilities. The government thus had no trouble figuring out what to do with the PCVs; it did the same thing it did with any Water and Forests staff member.

- The work met a real need. The volunteers were occupying positions that for the moment could not be filled by Moroccans.

- The volunteers' skill level was appropriate to the task. The volunteers were neither overqualified nor in over their heads. Thus, there was no credibility problem or lack of work.

2. Nepal Case Study

The Country

Nepal, 500 miles long and 100 miles wide, is a small, Tennessee-shaped kingdom lying between India and Tibet at roughly the same latitude as Florida or Egypt. The country consists of three distinct geographic belts: 1) the Tarai, the southernmost tip of the country, is a low-lying, jungle-strewn extension of India's Gangetic Plain and is, in many respects, the breadbasket of Nepal; 2) the Middle Hills, with elevations up to 15,000 feet, comprise the central strip of the country and contain the majority of Nepal's 14 million people; 3) the Himalayas make up the third zone, stretching for 500 miles east to west and serving as the border with Tibet.

Nepal is one of the world's least developed nations. The estimated per capita income is $120. Over 90% of the population is engaged in agriculture, while only one per cent is engaged in manufacturing. The principal crops are rice, jute, maize and barley. Closed to the outside world for many years, Nepal has only recently become exposed to the trappings of the twentieth century. In 1956 there were less than 200 miles of paved road in the country; now there are over 1,000. There have been similar strides in education and communications. Even so, Nepal's development continues to lag. The population increases at a rate of 2.6% annually, and it is estimated that agricultural production decreases at the same rate. With the growing deterioration of the Himala-

yan ecology, prospects for the future look even worse.

Forestry in Nepal: An Overview

The history of forestry in Nepal is likewise grim. Until this century's dramatic population increase, there were always more than enough natural resources available. The lack of water and fertilizer and the amount of labor needed to build terraces discouraged most Nepalis from cultivating large tracts of land and thus saved much of the country's forest cover. Also, traditional slash-and-burn agriculturists, in the parts of Nepal they inhabited, only used the land for one or two years and then abandoned it, allowing regeneration.

Population increases and the resulting need for food, fodder and fuel stepped up the consumption of natural resources and contributed greatly to the misuse and deterioration of the landscape. The typical progression of events is as follows: villagers go into new areas searching for firewood and fodder (leaves from the trees) and eventually strip the trees, cut them down and remove all scrub growth and ground cover. After the land is denuded it is planted until, after two or three years, the nutrients are depleted. Meanwhile, as all the vegetation is removed, the water-holding capacity of the soil drops dramatically. Springs disappear, there is irregular water flow and flooding, and natural reservoirs and streams become heavily silted. Water for domestic use and irrigation is threatened. Further, with the disappearance of the trees, people have to go further for fuel and fodder.

In 1957 the government nationalized all unregistered (unowned) forest and wasteland in a move that was intended to preserve the forests and guarantee their future growth. The effect of this move, however, was not always positive. Communities which had previously viewed this land as their own and protected it from outside exploitation regarded the government's action with suspicion and

anger. "Negative attitudes developed toward the government," notes one source, and the forest exploitation and degradation increased as villagers strove to collect what they believed was rightfully theirs before controls could be enforced.

The government eventually realized that nationalization was not the way to protect Nepal's forests and in 1970 amended the Forestry Act to provide for increased involvement and control over local forest resources.

Observers feel the amendment may be too little too late. Recent World Bank estimates predict that within 15 years all the accessible forests in the Hills will be gone and that within 25 years the same fate will have overtaken the Tarai.

Peace Corps Forestry Programs in Nepal

Forestry Survey Program

Peace Corps' involvement with forestry in Nepal began in 1964 with the arrival of 12 foresters. These Volunteers, in what was called the Forestry Survey Program, were assigned to work out of district forest offices between the Tarai and the inner mountain valleys. The job was to include fire protection, forest supervision, reforestation, pruning, and species improvement. The work was part of a larger AID/HMG (His Majesty's Government) effort to develop Nepal's timber industry and increase timber exports. Forestry management for profit, therefore, and not conservation, was the goal of this project. Community involvement was minimal.

For the most part Volunteers received little supervision from the District Forest Officers they worked with. The ministry was likewise uninterested in the

reforestation aspect of the work and did not support the Volunteers in this regard. The PCVs realized that they would have to collect seedlings and start nurseries on their own or such work wouldn't get done. Most of the Volunteers ended up promoting small-scale reforestation efforts with individual farmers or village groups. The 1965 Nepal Country Evaluation considered this work the most valuable part of the forestry program.

Otherwise, Volunteers spent the rest of their time doing forest surveys and mapping and demarcating the Government forests--work which amounted, in many cases, to "drawing lines across land that farmers have long been using as their own".[1] They also fenced in some plantations around the Kathmandu Valley and planted Eucalyptus robusta. At their Completion of Service conference in December of 1965 this group was somewhat bitter, complaining of poor job placement and inadequate HMG interest or support. They also felt their jobs had been incorrectly described to them during training, thus creating expectations that were never fulfilled.

The Food Production/Forestry Program

The second group of Peace Corps foresters to come to Nepal arrived in early 1966 as part of an agriculture program. The job description for these six foresters was similar to that of the first group, though the emphasis was now more on reforestation and conservation. Food production had become the government's number one priority and, on paper at least, forestry preservation and development was now seen not so much as a means to creating a timber industry as it was an integral part of erosion control and improved agricultural production.

That may have been the thinking, but the reality had changed little. The Peace Corps foresters were cer-

1. Nepal Country Evaluation, Meridan Bennett, 1965.

tainly free to develop nurseries and pursue small-scale reforestation and afforestation objectives, but they would get little help from the government or local forestry officials. "Nepal's forest", noted a Peace Corps project description, "are potentially a key source of foreign exchange". The problem was the same as that the first group faced: efforts that promised an immediate payoff in timber were supported; those that were small-scale and only helped individual farmers and villages aroused little interest.

Besides governmental indifference, the program also experienced two other difficulties: 1) the lack of enough trained Nepalis to serve as counterparts for the PCVs, and 2) land disputes which challenged the government's right to undertake forestry work on land villagers claimed was privately owned. In spite of these difficulties, the foresters reported at their Completion of Service conference (December 1967) that they had been satisfied with their experience. They felt that by example they had created an increased interest in and concern for forestry management, both at the district and ministerial level.

Nevertheless, by this time Peace Corps had become reluctant to support further forestry efforts in Nepal, given the profit-oriented attitude of the government and the obvious lack of commitment at the village level. For these reasons no new groups of foresters were sent to Nepal after the second group left in December of 1967.

Thus began a nearly ten-year period during which Peace Corps forestry work in Nepal slowed. There were a number of foresters in and out of Nepal during this period, but their number never rose above three or four at any one time, and they were not part of any specific forestry program. There was, for example, a fair-sized national park/wildlife management program in Nepal in the early 1970s to which an occasional forester was attached; the individuals worked mainly at the ministerial level and concentrated on preserving what trees remained within the national parks. Other

PCV foresters taught forestry or did management and nursery work for the Ministry of Forestry.

Watershed Management Program

It was not until 1977 that Nepal, and Peace Corps, once again became involved in village forestry. This was the year the First Amendment to the Forestry Act was passed in an attempt to halt the disastrous deterioration of the countryside in the Middle Hills. In just ten years the problem of forest degradation and its consequences had become so severe that the same government that was trying to export timber in 1967 was now wondering whether its forests could be saved.

In the summer of 1977 a small watershed management program was begun by FAO in the Pokhara district. Six PCVs, working for the Department of Soil and Water Conservation, were to do agriculture/forestry extension work in various villages throughout the region. Specifically, their responsibilities would include establishing nurseries, building fences to protect seedlings and cut down on overgrazing, rock correction work in streams, building erosion control dams, and developing and doing general extension/education work. Volunteers would be attached to a village council and work with local extension workers. The FAO would supply tools, seed, fertilizers and fencing and resident experts. FAO stationed a man in Pokhara to serve as a technical advisor to the PCVs and Nepali extension agents.

From the beginning the program ran into bad luck. For one thing PCVs had trouble getting the technical and material support they needed from the Ministry of Soil and Water Conservation, whose staff placed a higher priority on another project being done in collaboration with USAID. The FAO expert assigned to the watershed management project left after a few months to take a job with AID, leaving a gap the Ministry never filled. Supervision and support was lacking from Peace Corps as well; the Peace Corps program officer made no visit to the

PCVs. The Department of Forestry remained uninvolved, still concentrating on the timber business, when it might have stepped in to lend a helping hand.

There was also considerable local resistance to certain aspects of the project, particularly the fencing. Villagers feared losing access to their own forest land on which they depended for fuel and fodder and were suspicious of the motives of the Government.

The results were predictable: two PCVs terminated early and most of the others found other work. The general consensus was that the program, while badly needed, did not receive enough support from HMG and that without that commitment the job of changing attitudes at the village level was too difficult.

Community Forestry Development and Training Project

Peace Corps was not willing to close the book on forestry in Nepal just yet. In 1979 the government was known to be readying a joint HMG/FAO Community Forestry Development and Training Project (CFDTP), and Peace Corps was requested to become involved. The goals of the project are to help Nepal establish new forests, to protect existing ones, and to develop a conservation ethic at the village level. Working with the Hill Forest Division's District Forestry Office, community forestry assistants and village leaders, the Volunteers will be involved in all aspects of village forestry. The thrust of the program is perhaps best summarized in this statement from the project description: "Because social factors are primarily responsible for the deterioration of the natural environment, solutions must be directed through social channels".[2]

Efforts will be undertaken in 28 different Hill Districts over an estimated twenty-year period. The first four years will be financed through CFDTP. The first contingent

2. David Edds, CFDTP Project Description, 1980.

of PCVs, who entered training in August of 1980, will join British, UN and Japanese Volunteers already working in the project.

Success and Failure

Though individual Volunteers had some success in the first forestry program in Nepal, the project as a whole did not meet its objectives. The reasons are as follows:

- Divergent goals. PCVs were led to believe there was serious HMG commitment to reforestation, but discovered that income generation through timber cutting was the major objective of the program. Thus, Volunteers had to adjust to new roles (more mapping and surveying) or carry on with reforestation work, but without encouragement or support. In either case, valuable time was lost, trust was undermined, and motivation threatened. The problem was not so much that Peace Corps did not agree with the mission of the project, but that Peace Corps did not program or train with that mission in mind and erroneous expectations were thus created.

- Poor relations between HMG and local communities. Nationalization of unregistered land alienated villagers and subsequent actions by local forestry officials created suspicions that hampered village forestry efforts. Villagers weren't willing to cooperate in reforestation work, as they feared that the forest that provided their daily fuel and fodder would be fenced off for exclusive Department of Forestry use. Volunteers thus were placed in an extremely awkward position.

- Lack of trained Nepali counterparts. Volunteers frequently were not working with Nepalis and thus saw little hope that their work would endure after their departure. Again, the difference in thinking concerning the goals of the project between HMG and Peace Corps seriously undermined Volunteer morale and effectiveness.

With regard to the watershed management project, the following reasons for failure can be cited:

- The lack of technical support. The departure of the FAO adviser, failure of HMG to assign anyone else to the project, and lack of site visits by the Peace Corps program officer all conspired to leave the PCVs on their own to solve technical problems.

- Lack of community interest. As

exemplified in the question of fencing, the advisability of asking villagers to commit themselves to a program with long-term benefits but no short-term rewards was clearly a problem with this project. Though villagers may have been concerned with problems of soil erosion and deforestation, there ought to have been immediate incentives for them to get involved in the program.

3. Philippines Case Study

The Country

Consisting of some 7,100 islands, the Philippine Archipelago stretches for 1,100 miles between Taiwan and Malaysia east of the South China Sea. Only 400 of the islands are inhabited, and 11, including the two largest, Luzon and Mindinao, account for 95% of the total land area.

The Filipinos are Asians, a mixture of Malay and Chinese, with some Spanish. The Malay came first, from the south, around 2,000 B.C., and were followed 3,000 years later by the Chinese. Magellan claimed the islands for Spain in 1521, thus inaugurating 400 years of Spanish rule and influence. Today, for example, over 90% of the population is Catholic. The United States took over the Philippines during the Spanish-American War and ruled the country until independence in 1946.

Ferdinand Marcos, the present head of state, was elected in 1965, re-elected in 1969 and, in 1972, extended his presidency under the provisions of martial law. In that same year Marcos announced broad social and economic reforms to speed up the development of the country.

The Philippines has one of the highest literacy rates--83%--of the East Asia and Pacific region. Its relatively well-developed economy is based on healthy agriculture, forestry and fishing sectors; the Phillipines, for example, is one of the world's leading exporters of wood and wood products. The country also has extensive though largely untapped mineral resources. Industrial production has increased steadily since World War II.

But there is another Philippines,

one where the benefits of a growing economy have yet to affect centuries-old subsistence farming practices, the low level of health care, inadequate transportation and communications, and the other trappings of a still-developing nation. It was to this Philippines--some of the outer islands, more isolated reaches of the larger, more populated islands, and the slums of Manila and Cebu--that the Peace Corps began sending Volunteers in 1961.

Forestry Programs in the Philippines: An Overview

As with the other countries in this report, the major forestry problem in the Philippines is that the forests are disappearing. By 1976 90% of the country's virgin forests had been harvested or otherwise exploited, and the remaining 10% (1.7 million hectares) were being depleted at a rate of 200,000 hectares annually. Reforestation efforts, on the other hand, resulted in the replanting of only 12,000 hectares per year. The reasons for the loss of the forests were several: 1) indiscriminate logging practices, 2) the slash-and-burn practices of various indigenous tribes, 3) fires, 4) overgrazing, 5) mining practices, and 6) landslides. Proper forest and watershed management was non-existent. In fact in June of 1972 a serious flood in Luzon caused more damage and destruction than the entire Philippines sustained during World War II.[1]

With the coming of martial law to the Philippines in September, 1973, the government was restructured and various ministries embarked on new programs to speed up the development of the country. One such ministry was the Bureau of Forest Development (BFD), an amalgam of the old Bureau of Forests and Office of Parks and Wildlife.

The BFD had ambitious new plans--not to mention considerable new authority--to undertake a comprehensive program to preserve and

---

1. Peace Corps Project Description, 1973.

rehabilitate the country's forests and watersheds.

Peace Corps Forestry Programs in the Philippines

The First Era — 1973-1977

Peace Corps forestry work in the Philippines can be divided into two eras: the first, from 1973 to 1977, coincided with the program outlined above, while the second, from 1978 to the present, coincided with a major shift in BFD policy inaugurated by the Forestry Code of 1976.

During the first era, Volunteers were invited to work in two different programs within the BFD, the Parks and Wildlife Program (12 PCVs) and the Reforestation Program (four or five PCVs). The foresters' mandate was to work at a district or regional forest office and educate the staff in the principles of multiple-use forest and watershed management. The goal of the program, then, was training and skills transfer, but the real task was to change traditional attitudes toward the use of forests.

What made that already formidable task even harder was that there was no serious commitment to changing or improving forestry practices. The PCVs were free to pursue the goals of the program--to draw up forest management plans, etc.--but there was little likelihood that such plans would be implemented and little interest paid on the part of regional office personnel in learning the techniques of improved planning and management.

The second group of Volunteers arrived the next year, 1974, and though they met with some success, the program as a whole continued to be plagued by the same difficulties. At the instigation of the first group, however, this second contingent was assigned at higher levels within BFD to attempt to make an impact closer to the power center of the agency. At this level, according to a former Peace Corps/Philippines staff member, there seemed to

be a greater receptivity to what the Volunteers were being asked to do. PCVs felt they had had a positive influence on various forestry officials and gotten their message across.

By and large, Peace Corps' first involvement with forestry in the Philippines was not a success. In retrospect Peace Corps probably should have withheld its support until the program was more firmly established. In that way Peace Corps could have more accurately gauged the degree of government interest in and commitment to the program. As it was, although ambitious laws and grandiose plans were promulgated, there was not, in the final analysis, any real push for change from the top. When the second group of PCVs left, in 1976, Peace Corps in effect declared a moratorium on forestry programming in the Philippines.

It should be noted, however, that throughout the middle and late '70s there was another component to the Peace Corps forestry effort in the Philippines. While it was a decidedly minor part of that effort, it is noteworthy because of its reasons for failure. This project was an attempt to recruit highly specialized graduate foresters to do research work in the Philippines. Working with the Philippine Council for Agricultural Resources Research (PCARR), these specialists would design research projects and then request funds to implement those projects. But the money was never forthcoming, even though such funds were controlled by PCARR itself. The project was another example of the government promising more than it could deliver.

The Agro-Forestry Extension Project

Peace Corps' second attempt at forestry programming in the Philippines was called the Agro-Forestry Extension Project, which began in January of 1978 with 16 PCVs. The project, essentially a village-level effort, represented a major change of policy on behalf of BFD. That change had been signalled back in 1976 with the passage of the Fores-

try Code and then reaffirmed in 1978 with an amended version of the code. At the core of the legislation was a projected new effort to pursue forest and resource management at the community level, a realization that the prevention of the deterioration of the natural environment could not be managed from Manila, but must involve the understanding and cooperation of villagers all across the Philippines. Among the key provisions of the code were the limiting and banning of the export of raw forest materials and a new comprehensive plan to integrate all forest-related activities, which would include 1) improvement of park and wildlife management, 2) conducting a nationwide inventory of forest resources, 3) reforesting 210,000 hectares by 1983, 4) establishing community tree farms and tree parks in all cities and municipalities, and, 5) training slash-and-burn cultivators in reforestation and revegetation practices. In addition President Marcos decreed that every citizen must plant one tree per month for five years. Once again the Philippines had embarked on a major new forestry campaign, and the Peace Corps was asked to lend a hand.

Peace Corps involvement was in the form of a project that, in its way, was every bit as ambitious as the government's new manifesto. The project seemed to have thought of everything; if it worked, it would be a smashing success, and even if it didn't it still promised to have beneficial side effects. The idea was this: villagers do not plant trees because a law is passed; they don't even plant trees because it's good for the soil, prevents erosion or provides animal fodder; basically villagers have enough to worry about just planting and taking care of their crops. But what if planting trees meant increased personal income? The villagers would be recompensed, the environment would be improved, and the government would be grateful.

Thus, the Agro-Forestry Extension Project. Certain villages were selected to sponsor an inter-cropping scheme whereby farmers would

plant the fast-growing "ipil-ipil" (Leucaena) among their regular crops. These villages would be located near wood-based industries which would supply the seeds, seedlings, fertilizers and tools needed to plant and care for the trees. Once the trees had grown, the industry would buy them (or their by-products) from the farms. Volunteers would be assigned to the village to supervise the growing, planting and maintaining of the trees and training counterparts to eventually take over these responsibilities. Spin-off benefits were that ipil-ipil can be used as a natural fencing, has a well-developed root system that can protect against erosion, has leaves that can be used as animal fodder, and is nitrogen-rich and thus improves the soil quality.

Throughout 1977 Peace Corps contacted certain wood-based industries (including the Philippine Smelters Corporation of Camarines Norte and the General Mining Corporation of Cebu) and certain municipalities, and made provisions with the sponsoring agency, the University of the Philippines at Los Banos, for providing training and technical assistance for the Volunteers. In January of 1978 the first group of PCVs (16 foresters) arrived in-country and the project got underway.

The experience of two of the PCVs was representative of the group and makes for a fascinating account of how the program actually worked. These two Volunteers were assigned to the municipality of Labo in Southern Luzon. In their particular case the Philippine Smelters Corporation (PSC) had agreed to serve as a market for the trees the Labo villagers would grow. From the trees the company would make charcoal to fire the blast furnaces used to smelt iron ore. The seeds and seedlings were to be provided to the village by the provincial government.

All the PCVs had to do was sell the idea to the farmers. But as pointed out in one PCV's report on the project, "Where low-class farmers own little if any land (large land holdings with many tenants is the rule in this area) and where tradition is important . . . forestry con-

version will inevitably be a slow process". And local resistance aside, external factors also conspired to threaten the project.

The first thing the two PCVs did was to establish an experimental nursery next to their house so that villagers could become accustomed to their work and acquainted with the project. The first snag occurred when, due to transportation costs, no seedlings were supplied by the provincial government. Some farmers were willing to set aside acreage, but there was nothing to plant. Somewhat embarassed, the PCVs were saved when the PSC agreed to raise the seedlings and supply them to the farmers. The only hitch was PSC would have to charge 27 centavos per seedling. For the average farmer, who might want to plant between five and ten thousand seedlings, the cost was prohibitive.

Meanwhile two other problems had arisen; PSC announced that it wanted to be able to set the price of the charcoal and furthermore that there would be a delay in opening its plant in the Labo area. The price-setting scheme was unacceptable to the PCVs as well as to the University of the Philippines. The issue was somewhat academic, however, because without the iron ore plant there would be no market for the trees. As one Volunteer noted, "Our credibility was zero."

The program, as originally envisioned, could not be salvaged, at least until the plant opened, so the two PCVs sought to restructure it into a "multi-purpose, small-scale, backyard planting scheme." The focus thus became to convince the farmers to raise ipil-ipil to meet the immediate firewood and animal fodder needs of the family. This, again, was done principally through demonstration plots set up by the PCVs and the local government as well as a few brave farmers. Eventually, in 1978 104,000 ipil-ipil seeds and 2,200 seedlings and 600 seeds of eight varieties of other trees were distributed to 24 neighboring villages, two experimental nurseries, five schools and two health clubs. What had started off as a disappointing year ended on a more hope-

ful note.

1979 was even better. The project was expanded to include new activities, such as leaf-grinding, cattle-fattening and pellet production. In March of that year ipil-ipil was suddenly thrust into national prominence when the price of gasoline went up 30%. One of the Volunteers described what happened next: "As a result all barangays (small villages) and municipalities have been asked very politely by the national government to construct two-hectare energy farms, with one hectare planted to cassava for gasahol supplements and the other to ipil-ipil for firewood production. The momentum of our work increased substantially as people consulted with us daily."

The project, already beginning to catch on, now received even more interest and attention; all of 1978's statistics were surpassed.

Thus, though the program had yet to realize its original objectives, it was a success nevertheless, thanks largely to the ability and willingness of the PCVs to be flexible.

Peace Corps wanted to put more volunteers into the project in 1979, but the University of the Philippines, the program's sponsoring agency, wanted to evaluate how things stood first. A year later, in February 1980, Peace Corps got the go-ahead and placed a second generation of Agro-Foresters in the field.

The program, of course, is not without its flaws; critics point to the risks of basing a project on one type of tree, to the PCVs' lack of field experience with ipil-ipil, and to the inevitable dangers of multi-party programming. On this latter note, the point is made that the more variables introduced into the design of a program, the greater the danger of something going wrong. In the case of the agro-forestry program the resources and commitments of several groups were involved, i.e. Peace Corps, the University of the Philippines, the Bureau of Forestry Development, the various wood-based companies, local, municipal or community councils. And as predicted there were problems. Overall, how-

ever, the PCVs successfully regrouped and were able to make some real progress.

Success and Failure

To recapitulate, then, the first Peace Corps forestry program in the Philippines was by and large a failure, for the following reasons:

- Lack of host country support. The government of the Philippines was not committed at all levels to the goals of the first Peace Corps program. If it had been, ways could have been found to give the program a chance of success.

- Premature Peace Corps involvement. Had the Peace Corps waited to get involved in the program the degree of host country support could perhaps have been more carefully gauged. (The same, of course, might be said of the agro-forestry project, which was a success. The difference, at least in part, can be ascribed to the relatively free hand the PCVs were given in their villages.)

The Agro-Forestry Program succeeded for the following reasons:

- Strong sponsoring agency. Throughout, the University of the Philippines supported the program and showed a keen interest in its implementation.

- The program met a real need. Even with the temporary collapse of the marketing scheme, villagers still felt the need to grow ipil-ipil and, thus, the project succeeded.

- The flexibility of the PCVs. The ability of the PCVs involved to switch horses in mid-stream was crucial to the success the program ultimately enjoyed.

- Considerable government interest. Community forestry was a highly publicized Philippine government priority, especially after the dramatic increase in fuel prices.

4. Chile Case Study

The Country

Chile, a thin strip of a country 2,600 miles long and an average of 200 miles wide, hugs the western coast of the lower half of South America. Its extreme length makes for considerable geographic and climatic variation; the North is a formidable desert covering nearly a third of Chile's land area. The central part of the country enjoys a temperate climate and is the commercial and cultural nexus and contains three-fourths of the population. The South is a region of lakes, forests, steep valleys and generally cold weather. The Andes Mountains run the length of Chile and account for a third of the total land area.

Chile is more developed than most Latin American countries. It has a large middle class and more people live in cities than in rural areas. The mining industry is well established and accounts for most of Chile's foreign exchange. Copper, in particular, is a key export, with Chile possessing an estimated 22% of the world's total known copper reserves. Other major industries include steel, food processing and textiles.

Much of the population is still lower-working-class, however, and the effects of Chile's development have yet to make a significant impact on life in the rural areas. Peace Corps' early effort in Chile was mainly rural community development, reflecting the government's realization that much work remained to be done to bring that sector of the country into the mainstream of Chilean society.

Forestry in Chile: An Overview

Concern for Chile's forests--to exploit them wisely and to replace them systematically--is a recent phenomenon, even though the first general forestry law was passed in 1931. Over the years Chile's more than 20 million hectares of forest had been subject to unplanned, indiscriminate exploitation until by the 1970s only six million hectares remained.[1]

Little was accomplished in the thirty years after the first laws were passed. A forestry school was not established until the 1950s, and no serious effort at land use planning was launched until 1961. In that year, with the assistance of funds from the Food and Agriculture Organization of the UN, the Forestry Institute was established "to support public and private forestry activities for research and training."[2] Four years later the institute was incorporated into the Chilean Ministry of the Economy and the Ministry of Agriculture.

In 1967 a new forestry law was passed which created a separate Division of Forestry within the Ministry of Agriculture, but also provided for the continuation of the work of the Forestry Institute. During the next four years these two agencies were jointly responsible for forestry work in Chile. In 1971 the two were finally merged under yet another agency, the Corporacion Nacional Forestal (CONAF), which was to have overall responsibility for development and control of all forest resources in Chile. The Forestry Institute continued to exist, incidentally, but its chief was appointed by the head of CONAF and its activities subject to CONAF approval.

---

1. Project Description of 1976 Omnibus Program.

2. 1977 Program Description.

Peace Corps Forestry Programs in Chile

The Institute of Rural Education (IER)

The first group of PCVs to arrive in Chile, in 1962, contained a number of foresters. These first PCVs (it's not clear how many there were) were part of the Institute of Rural Education (IER) program, which in turn grew out of the Jesuit-run Accion Catolica community development project. This program, in other words, was not associated with the Chilean government and, although run by priests, it was essentially a lay organization in terms of its objectives.

The IER/PC foresters were assigned to do small-scale reforestation work with various rural groups, particularly the Mapuche Indians. Working out of centros (rural community development clubs), and working with the local delegado (club manager), the PCVs established small nurseries and distributed seedlings to help prevent erosion and serve as a source of firewood.

Like many early Peace Corps programs IER was not particularly successful. For one thing it was located outside of the Chilean governmental structure and, though it had the government's blessing, it did not always have the government's cooperation. There was also a good deal of political infighting between the political IER heirarchy and the more left-leaning delegados. Finally, IER was too small a program to undertake any kind of serious reforestation work on a national scale. The 1963 country evaluation noted that PCVs were having some success, but that Peace Corps' involvement in IER was probably ill-advised; sooner or later Peace Corps would have to work more clearly with the Chilean government, and the sooner that happened, the better.

The Forestry Institute

By 1964 Peace Corps had begun to program through the various Chilean ministries. For the foresters this meant that for the first time they

would be working directly in the Forestry Institute. Several such PCVs arrived in-country in October of 1964. Their work corresponded with the largely research- and planning-oriented mandate of the Institute, i.e. surveying, inventory and mapping work, drawing up forest management plans, species experimentation, soil studies, etc. The 1966 Chile evaluation considered the program "one of the best in the country" for a number of reasons: 1) the work was carefully defined, 2) the PCVs were fully qualified and their credentials respected, 3) their involvement was strengthening an important institution, and 4) the program was benefitting the economy and the development of the country. On the other hand there was some question as to whether or not the Institute was the proper arena in which to concentrate Peace Corps' forestry effort in Chile, i.e. the PCVs were not working directly with the rural poor. The program, in other words, was a success, but was it really the kind of success that Peace Corps wanted to have?

Community Reforestation

The answer came two years later, in 1966, when the Peace Corps program in Chile was substantially revamped. The new model, inaugurated by the group of 31 forestry PCVs who arrived in October of that year, had a decidedly rural/community forestry orientation. The program consisted of six graduate foresters who would work in the forestry division of the Ministry of Agriculture and be assigned to district offices where they would work directly with Chilean counterparts. Their main responsibilities would be in the areas of soil testing, species experimentation, and the growing of seedlings. Most importantly, however, these specialists would be called upon to advise and assist the other 25 PCVs involved in the program, who would be assigned to villages throughout the district and charged with promoting community and individual interest and reforestation. These 25 PCVs, all generalists, would work with

individual farmers and community groups to teach them the importance of reforestation and the necessary skills for planting and maintaining seedlings.

This program was part of the National Reforestation Plan, the goal of which was to plant 5 million hectares of eroded land in 35 years, with the eventual objective of erosion prevention and the creation of a supply of forest products for industrial use. Farmers who participated were eligible to receive credit from the National Institute for Agricultural Production, an important provision as the farmers needed the money to buy fencing to protect the seedlings. The program received its second group of PCVs (12 foresters and 17 generalists) in September of 1967 and a third contingent of roughly the same size in 1968. This represents the largest forestry effort the Peace Corps ever mounted in Chile.

But did it work? The answer, generally speaking, is yes, though it depends on who you talk to. The generalists, by and large, were quite successful. At their COS conference in August of 1968, the first group that had entered the program were extremely positive about their experience:

> The group believed [notes the conference report] that both they as individuals and the program as a whole had been successful and contributed to the development of Chile. The generalists thought that the program's basic belief that generalists could play a limited technical role in forestry had been proven correct. They were almost boastful about the number of trees they had planted and were convinced of the value of their service. They attributed the success of their program to its being based on sound institutions, the Forestry Institute and the National Institute for Agricultural Production, and its being designed to meet important Chilean needs.[3]

These PCVs did have some complaints, however, most of which centered around site assignments. While these problems did not seriously jeopardize the success of the project, they might very well have hampered a less healthy project, and

3. Completion of Service Conference, Chile 23.

thus they bear repeating here. For one thing the generalists felt that they had been sent to sites chosen by the Ministry, but not necessarily checked out at the local level either by Peace Corps or the government. In many cases when the PCVs arrived there had been no clear plan for how they would be used. As a result a number of the volunteers ended up wasting several months as messengers or doing general office work. The Volunteers recommended that the Ministry not be involved in site selection too early:

> They were not satisfied that [the Ministry] yet understood the Volunteers sufficiently to have an adequate comprehension of the job that they were to perform. In addition [the Ministry] seemed to be subject to such considerations as a) a desire to simply expand its bureaucracy, b) politics, c) a wish to be attractive to USAID and other sources of finance.[4]

While the generalists were pleased with their experience, the foresters were less enthusiastic about theirs. They agreed that the program had been a success, but they did not feel that they had played much of a part. They found that their role as technical advisers to the generalists had not really been necessary, that the level of work the generalists were doing was not that technically demanding. Many of the foresters thus felt underutilized and quickly became bored.

The 1967 "Evaluation of the Forestry Program of Peace Corps in Chile" came essentially to the same conclusions. The evaluator felt that the success of the program should be attributed mainly to the non-professionals who had indeed done good work and had been commended by the Ministry. The evaluator also noted that the generalists had gotten involved in other kinds of community development work as well, such as organizing sports clubs and establishing volunteer fire departments. But, the evaluator continued, the graduate foresters were not being well used, largely because of the program's emphasis on reforestation,

---

4. Ibid.

a not particularly challenging task technically.

The evaluator went on to make another important observation: it was his opinion that the Ministry did not always seem sure what to do with PCVs, particularly the professionals, and as a result Peace Corps seemed to have established its own little forest service in Chile. His recommendation was that the Ministry ought to expand its work into activities other than reforestation or else not request so many professional foresters.

The Role of Peace Corps Volunteers

In 1970 the direction of the Peace Corps forestry program in Chile took yet another turn. That was the year the Marxist government of Salvador Allende came to power. And the next three years, until the military coup of 1973, were marked by increasingly serious political polarization in Chile. In that atmosphere few of Allende's ideas actually got translated into programs. The implications for Peace Corps were not positive. In addition, Allende did not want foreigners spread all over the country. Thus Peace Corps scaled down its program in Chile, sending in only a few specialists to do research work or teaching in Santiago or at Austral University in Valdivia. Some of this had been going on already, at the same time as the community reforestation work, but now highly trained professionals became the focus of the program in Chile. In a sense "program" is a misnomer, as PCVs were more or less pursuing independent projects as part of a particular faculty or research institute; all they had in common was their number of years of specialization. Among the skills that were requested during this era were an aerial photo-interpretation specialist and graduate foresters in forest entomology, tree genetics, and wood technology. The goal of the program, clearly, was to supply critically needed trained manpower while Chile trained its own foresters. Skill transfer does not seem to have been a priority. It should also be pointed out that the entire effort in

Chile during the Allende years was drastically cut back until, at the time of the military takeover, there were no more than 15 PCVs in the country.

After the coup the forestry program continued in more or less the same vein, with a strong emphasis on research and teaching and specialists still filling in until Chileans could take over. Because Chile was heavily in debt after the Allende regime fell, a priority of the Pinochet government was to get the country's economy back on its feet. As a result forestry efforts concentrated on profit-making rather than conservation and reforestation.

How, then, does one characterize this last phase of Peace Corps forestry in Chile? Generally speaking, the specialists who served during these years were very satisfied with their work; they had specific, well-defined responsibilities, were meeting obviously important needs, and were buying time for the country. In those terms the program was a success. The handwriting was on the wall, however; the Peace Corps in general was once again moving in the direction of rural community development--helping the poorest of the poor --and the forestry program in Chile was clearly not consistent with that orientation. It was, in short, the twilight of the era of the specialist.

Success and Failure

The forestry programs in Chile get mixed reviews; IER, the first, was not particularly successful. The reasons are repeated below:

- <u>The program was not attached to the Chilean government</u>. This was a direct Peace Corps third party effort which did not include the Chilean government and thus could not count on the government's support or long-term interest.
- <u>Internal squabbling within IER</u>. There were differences of opinion between the IER hierarcy and the more left-leaning field personnel as to what direction the program should take. Field efforts were always in danger of being compromised by sudden policy shifts.

The community reforestation program was successful for these reasons:

- Strong ministry support. Both of the involved ministries strongly believed in the program and came through with the necessary support.
- Strongly organized local communities. Local communities were sufficiently organized to be able to carry out the work of the program.
- The job clearly matched the skills of the PCVs, especially the generalists.
- The need for reforestation was (or was made) apparent.

And the specialists also had a successful experience:

- They had clearly defined responsibilities.
- Their work was commensurate with their training and thus professional satisfying.
- The specialists felt they were performing a valuable service that, at the time, Chileans could not perform.

5. Guatemala Case Study

The Country

Just south of Mexico, Guatemala is the northernmost country of Central America. Its most distinguishing natural features are the two mountain ranges which cut across the country from the northwest to the southeast. One of these ranges includes a chain of active volcanoes. The mountains, and the plateaus and the valleys between them form Guatemala's central highlands where most of the population is centered. Other, less-developed regions include the jungle lowlands in the east, the more arid north (jutting into the Yucatan) and the southwestern Pacific plain, a rich agricultural zone. The capital, Guatemala City, with more than a million inhabitants, is the largest urban area in Central America.

More than half of the population are pure-blood Mayans. Originally a highly advanced and unified culture, the ancient Mayan civilization disappeared suddenly before the age of the Spanish conquest leaving fragmentary subcultures, each with its own dialect and customs. Guatemala achieved its independence from Spain in 1812. Throughout the nineteenth and twentieth centuries the country was ruled by a succession of dictators until in 1970 Colonel Carlos Arana Osorio was elected president and adopted Guatemala's first comprehensive development program.

After World War II Guatemala's sluggish economy experienced rapid growth with the national income doubling in just over two decades. More recently, however, development has been threatened by inflation and rapid population growth. Hardest

hit have been the rural poor, whose scramble for arable land has grown steadily worse and whose solutions to the problem--cutting the oak and pine forests and farming the fragile topsoil at increasingly high altitudes--have only compounded these difficulties. More than 70% of the adults in this group are illiterate, many speak no Spanish, and more than 80% of their children are malnourished.

Forestry in Guatemala: An Overview

The highlands of Guatemala, known as the altiplano, is inhabited largely by Indians and is "one of the most important agricultural and coniferous forest regions in the entire country,"[1] but its productive capacity is being seriously undermined by increasingly destructive soil erosion. In the process much of the surface soil and subsoil materials have been stripped from the land, thereby removing that land from agricultural production or the possibility of grazing and thus threatening the food supply and economic stability of the inhabitants. The response to this problem traditionally has been the overgrazing and overplanting of neighboring acreage as well as the cutting of trees to serve as fuel and fodder and, eventually, clearing the dead trees to provide more land for planting.

In addition, the erosion has led to the creation of gullies, landslides and other dislocations of the terrain, frequently resulting in flooding and serious sedimentation problems in the lakes and streams. Thus, the overall capacity of the altiplano to support its inhabitants is increasingly jeopardized.

In responding to this problem, Guatemala's agency responsible for natural resource management, the

1. 1974 Project Description

Instituto Nacional Forestal (INAFOR) initiated a forestry project with assistance from CARE, the U.S. Peace Corps and other agencies.

Peace Corps Forestry Programs in Guatemala

The history of Peace Corps forestry programs in Guatemala is the story of a six-year partnership between Peace Corps, CARE and the Instituto Nacional Forestal. The first Volunteers to work in forestry arrived in 1974. The latest group arrived in Guatemala in September 1980. In that six-year period the structure and the emphasis of the program has changed little. Thus, the focus of this study will not be so much the various trends in forestry programming in Guatemala, but rather an in-depth consideration of how one program, over a period of years, attempted to respond to the development needs of a particular region and group of people.

The INAFOR forestry program is approaching the environmental deterioration of the altiplano with the conviction that since the problem exists in the field, it must be solved in the field. Further, as the problem is largely the result of land use practices, the solution must be to work with the people to change their practices. Specifically, INAFOR's Resources Management and Conservation Program has four objectives: the control of erosion, correction of drainage and overflow problems, maintenance or improvement of soil productivity for all types of crops (agricultural, grass, forests) and the management and conservation of water. These goals are in addition to a tree-planting goal of two to three million trees per year. Such an ambitious undertaking requires the support and cooperation of numerous institutions and individuals. Involved, in one way or another, in the resources and conservation project are the Ministry of Agriculture, the Peace Corps, CARE, OAS, OXFAM, Center for Mayan Culture, and various religious groups, village

cooperatives, rural teachers, and private individuals.

The project has two major emphases, a Food for Work component and a counterpart development project. Under Food for Work, CARE provides certain commodities to farmer work groups who undertake management and conservation practices, such as bench terracing, planting of denuded areas, reforestation and range reseeding, small dam construction, etc. Technical assistance is provided by INAFOR, while the Peace Corps provides the on-site supervision.

The counterpart development program is carried out at the village level where a skilled worker from INAFOR, usually a PCV forester, works with the villagers to introduce and demonstrate new land use practices. As part of this effort the PCV selects a counterpart for training. The counterpart, who is paid a modest wage by INAFOR, is expected to eventually take over for the PCV, who then moves on to another village.

The INAFOR Project

Volunteers play a crucial role in INAFOR; they are the liaison between the technical experts at the ministry and district levels and the villagers of the altiplano. Volunteers, most of whom have a forestry background, are assigned to a district INAFOR office and usually work with several villages simultaneously. In each village the PCV: 1) establishes and maintains a tree nursery as part of a local reforestation and afforestation effort, 2) helps establish village forest committees to carry out forestry improvement programs, 3) establishes a demonstration area for the purpose of teaching proper soil, plant and water management and conservation practices, 4) trains a local counterpart, and 5) carries on an extension education program.

By most measures the Peace Corps INAFOR program has been a major success. The first 21 volunteers, a mixture of foresters and generalists, arrived early in 1974 and seem to have made great progress toward accomplishing the project's objectives: "We are pleased to note,"

they wrote in their mid-service conference report, "that all of these Volunteers had accomplished the work of the making of a tree nursery and taught various methods of soil conservation to the people in their respective sites." They also noted that a few PCVs were drawing up and "attempting to implement forestry management plans" and that "every one of the Volunteers in the field is working with and training a bilingual Indian counterpart."

Two other assessments of the work of this group were likewise quite positive. These assessments were made by two professors who visited the program in their capacity as members of the University Technical Assistance Consortium for Peace Corps Forestry and Environmental Programs in Latin America. The consortium was founded to serve as a technical assistance unit for the Volunteers in the field and as a resource for recruiting Peace Corps Volunteers.

Dr. Norman Richards of the College of Environmental Science and Forestry, State University of New York, visited Guatemala in January of 1975 and found that although there had been some problems with INAFOR, the PCVs "through their own resourcefulness and by increased cooperation among themselves"[2] had been able to function effectively. The problems Dr. Richards identified were 1) ineffectual field coordinators (the technically trained experts from INAFOR who were to advise PCVs in the field), 2) the withdrawal of two top-level technical advisors (from OAS and OXFAM) from the program, 3) a shortage of money, and 4) a short-staffed Peace Corps office. Dr. Richards made two recommendations for strengthening the program: 1) in selecting work sites Peace Corps should be careful to choose villages which already have some existing social structure--a coop, an active church program, a responsive local government--that the PCVs can become attached to. Volunteers

2. Norman A. Richards, Report on My Third Technical Visit to the INAFOR Peace Corps Program in the Altiplano of Guatemala, January 1975.

working alone with their counterparts cannot make a significant impact, particularly over the long term; 2) while technically qualified PCVs were desirable for the program, even more important were individuals with social and political sensitivity and a heavy dose of personal resourcefulness. All in all, however, Dr. Richards thought the program had "made a real beginning."

Dr. Edwin Tisdale of the University of Idaho likewise praised the project, particularly the maturity of the Volunteers and their great "willingness to carry on with a minimum of help."[3] Dr. Tisdale also recommended that only those communities with "some organizational structure with which the Volunteer can operate" be chosen as work sites.

In the summer of 1975 the second group of INAFOR Volunteers arrived, consisting of 22 foresters and soil conservationists. The objectives/roles of this group were essentially unchanged from that of INAFOR I. Once again the Volunteers seemed to have had considerable success. At their mid-term conference in 1976 100% reported they had met the objective of establishing/maintaining a nursery, 100% had trained a counterpart, and 80% had carried out some sort of land use education program. On the other hand, only 32% had been able to establish demonstration plots, largely because there was so little idle land available (the group eventually recommended eliminating this objective from the program), and none of the PCVs had achieved the objective of establishing village forest committees to carry out forest improvement programs. The group regarded this later goal as premature "because in the majority of the areas there are no forests to work with." They recommended this objective be postponed to a later date. Though the Volunteers were generally successful, they nevertheless had some problems with INAFOR, specifically

---

3. Dr. Edwin Tisdale, Report on Second Visit to the INAFOR Peace Corps Visit to the Altiplano Region of Guatemala, February 1975.

over the issue of counterparts. The Volunteers complained that INAFOR did not take the counterparts seriously while they, the PCVs, considered the whole objective of counterpart development/transfer of skills the most important element of the program. The agency, the PCVs complained, frequently denied them certain medical services that they were entitled to, and that in general INAFOR did a poor job of orienting and providing technical training for the counterparts. The Volunteers went so far as to recommend that if INAFOR did not correct these deficiencies in the program, Peace Corps should discontinue its cooperation with that agency.

Nevertheless the program continued with some changes in personnel and a third group of Volunteers arrived in late 1976. By the time of the May 1977 Country Program Evaluation conducted by Peace Corps, INAFOR had 40 PCVs, 26% of Peace Corps/Guatemala's total, making it the largest Peace Corps program in the country. By all indications, the program was still working well, and INAFOR was pleased, saying that with only six Guatemalans holding degrees in forestry, the need for trained manpower was acute. An INAFOR official said he could easily place twice as many Volunteers as he then had in-country. The evaluators went on to note that, "In the opinion of all concerned--host country officials, Peace Corps/Guatemala and PCVs--the Volunteers are not only an appropriate resource to meet this problem but are in fact the only people qualified at this time to do the job."[4]

Volunteers were also content. They found their work very relevant to the needs of the country while at the same time professionally satisfying. They were able to carry out many of the objectives of the program and were apparently no longer having the counterpart problem of a couple of months earlier. Seventy-one percent of the PCVs felt they would leave a well-trained counterpart in their stead and 100% said a

4. Peace Corps Country Program Evaluation, 1977.

functioning institution able to carry on their work was in place. In just one year, the evaluators noted, PCVs had planted 600,000 trees. (Other estimates place the total at 1.2 million by the end of 1977).

Another strength of the program was the high quality of host country support. In the year preceding the evaluation, INAFOR allotted $141,000 for the program, and INAFOR agents made frequent visits to PCVs in the field. In addition the material and moral support provided by CARE, through the Food for Work program, was a great boost to the program. Peace Corps staff support was now greatly improved as well, with staff-volunteer contacts as frequent as fifteen times per year.

The only real weakness the evaluators could find was that the program was too small!

The history of INAFOR, then, is largely a litany of success; the program is effectively addressing certain key needs of the Indians of the Guatemalan altiplano. There is, however, one other side to INAFOR that should be mentioned. Underlying the INAFOR program is a question which goes beyond land use and conservation in the altiplano to the issue of land ownership in Guatemala, where a large percentage of the land is owned by a small minority of wealthy families.

The relation between land use and the socio-political dynamic of Guatemala is far from tenuous. A PCV cut to the heart of the deforestation question when he wrote: "The poor are pushed farther up onto the poorest slopes and forced to farm land that should never be taken out of the forest."

For INAFOR, and other Peace Corps programs like it, the question has to be asked: Is this program treating the symptoms or the disease? The possible answers are many. Yes, INAFOR does treat symptoms, but that's better than nothing. Or, yes, INAFOR does treat symptoms, but the government does have another program working on the disease. Or, right now INAFOR is only treating the symptoms, but once they've established credibility they'll go deeper. What's important is that the question

be asked. Peace Corps should be constantly examining anew whether that involvement continues to be appropriate.

Success and Failure

Judged by the criteria of its stated objectives, INAFOR has been a success. The reasons, sprinkled throughout the preceding text, can be summarized as follows:

- A high degree of host country commitment, both to solving the problems of conservation and to this particular program.
- The material support offered by a third party, CARE.
- The central role of the Guatemalan counterpart (whose involvement reassures PCVs their work will live after them).
- The low level of technology/ expense involved.
- Work sufficiently matched to the skill level of the PCVs.

6. Chad Case Study

The Country

Chad is one of the five largest countries on the African continent, roughly twice the size of Texas. Chad lies south of Libya, west of the Sudan and east of Niger. A completely land-locked country, it consists of three geographic zones: the northern desert, which occupies three-fifths of the surface area, the shallow basin across the center of the country, and the brown and green savannah land of the south. Ninety percent of the people live in the southern fifth of the country.

An estimated 95% of the population makes its living from subsistence farming and cattle herding. The principal crops are millet, sorghum, corn, cotton and peanuts. Until 1968 Chad was agriculturally self-sufficient, but in that year a serious drought struck the country and then persisted for the next five years. It is now uncertain if or when Chad will ever be able to grow all its own food again.

According to the World Bank, Chad is one of the world's five poorest countries. Only 10% of the population can read and write and half of the country's children die before they reach the age of five. The average life expectancy is a brief 39 years. "Chad's present," noted one source, "is grim and the future uncertain."[1] Three major problems confront Chad's development: there are few mineral resources, a large part of the country is desert, and there is no access to the sea. Per capita GNP is under $120. With

---

1. Peace Corps Country Evaluation, 12/78.

most of the people farmers, and few farmers raising cash crops, the capital base and source of income is extremely limited.

As if Chad's problems weren't serious enough, a longstanding secessionist dispute between the Moslem-Arab faction in the north and the Sudanic-Bantu tribes in the south broke out into open warfare in 1979. Peace Corps Volunteers and staff were evacuated in that year, and there are currently no plans to re-enter Chad.

Forestry in Chad: An Overview

Forestry in Chad is not pursued for its own sake, but rather for its contribution to the agricultural sector of the economy; that is, reforestation is important in Chad as a means of land reclamation, protecting crops (from the elements and, through natural fencing, from grazing stock). In a country whose climate is as harsh as Chad's and whose economy is so dependent on agriculture, the preservation and productive capacity of land is bound to dwarf all other considerations.

The already marginal existence of much of the population was jeopardized even further by the serious drought of 1968-73 which devastated crops and livestock herds, increased pressure on the forests, and destroyed thousands of acres of cultivable topsoil. Small wonder, then, that in the mid-1970s Peace Corps was asked to develop a forestry program to help in the task of rehabilitating the country's agricultural sector.

Peace Corps Forestry Programs in Chad

Early Efforts

Actually, Peace Corps had been doing forestry work in Chad as far back as 1969 when one PCV first started working at the Matafo Experimental Station. Apparently this Volunteer was a one-man forestry program involved mainly in general nursery work. In 1971 two more

foresters came to Chad, one to replace the Volunteer at Matafo and one to work first at Fort Lamy and later at Lai. Their work was to oversee the growing of seedlings, both for reforestation and fodder production, supervise the planting and maintenance of windbreaks, shelter belts, firewood plantations, and fruit orchards, and to train local counterparts/field agents. Like the Volunteer before them, one of the two PCVs was assigned to the Chadian Department of Water and Forests, an agency desperately in need of trained manpower. The other was assigned to the SODELAC (Society for Development of Lake Chad) project.

The "program" continued in the same vein for the next three or four years, with one or two foresters arriving annually. But there was little or no material or technical support from the Chadian government (which didn't have the means). Even so these pioneering PCVs seem to have been quite successful. For one thing, their services, if unsupported, were sincerely appreciated and very much in demand. In addition there was considerable third party support, mainly from the World Bank and AID, the chief backers of the SODELAC project. Several of the early PCVs worked on this project and made substantial contributions. One PCV at Matafo completed a windbreak and established small trial plantations along the lakeshore and on the dune at Bol.

The next report (1974) still finds only two forestry PCVs in-country, one working with SODELAC and the other working in Lai on fruit tree species experimentation, specifically with guava, mango and cashew, along with some eucalyptus and neem plantings. A 1978 Country Program Evaluation noted that forestry programming in Chad in the mid-1970s "stagnated due to revolving door staff."

In a similar vein the report of the 1977 Arid Land Forestry Conference in Niamey noted that "forestry in Chad is presently far behind the efforts being made in other Sahelienne Zone countries."[2] In fairness to Peace Corps, however, it should

2. Notes of the 1978 Peace Corps Forestry Conference, Niamey, Niger, October 1978, p. 43.

be pointed out that the Water and Forest Department in Chad was so understaffed that a large-scale program might not have been adequately supported.

Whatever the reason, there does not appear to have been any serious attempt to establish a forestry program to capitalize on the good work (and good relations) of the earlier PCVs until sometime in 1976. This effort, in turn, was largely in response to major new forestry initiatives on the part of various third parties. In fact, the history of Peace Corps forestry work in Chad after 1976 is the history of these organizations and Peace Corps' relationship to these projects.

The CARE Gao Program

The largest of these initiatives is the CARE Acacia albida (gao) program begun in 1976. With money donated by AID, CARE built and maintained six nurseries in the area south of N'Djamena. Each nursery was run by either a PCV or a Chadian Water and Forests agent. The idea of the project was to promote reforestation and increase soil fertility and agricultural production by encouraging farmers to plant gao in their fields. Gao has a number of attractive properties: it sheds its seedlings during the rainy season and thus does not keep the sun from the crops, and its leaves provide shade during the long dry season, helping to prevent soil desiccation. Its root system retains moisture and its leaves act as a natural fertilizer. Fields planted with gao thus do not have to be left fallow every two or three years to regenerate. Gao trees take 15 years to mature, however, and an incentive thus has to be provided to farmers before they will go to the considerable trouble of planting and, especially, protecting the seedlings. In the CARE gao project this incentive was food donated by AID.

In 1976 1,500 hectares of acacia were planted, with a survival rate of 40%. In 1977 2,500 hectares were planted with a higher survival rate expected. By October of 1978 the project had expanded to include nine nurseries producing a total of 300,000

seedlings a year being distributed and planted by 2,000 farmers. A preliminary study showed that the presence of gao increased crop yields by 15%. Throughout 1976, 1977 and 1978 there were four or five PCVs involved in the program.

There were, of course, some difficulties with the program. For one thing, the farmers were skeptical; in spite of the food-for-work incentive, some farmers were reluctant to become involved as they had heard the government would take their land once the trees matured. Defusing this issue required considerable effort and time in the field on the part of the Department of Water and Forests counterparts. This effort, however, paid off; it not only reassured the farmers, but also convinced them that Water and Forests, i.e. their own government, was committed to this project and not just Peace Corps and the other donor agencies. Another problem was the fear of birds. Trees provide homes for birds, and, as a result, many farmers were reluctant to plant seedlings. "The bird problem," noted a PCV involved in the project, "will one day be solved, but if the Sahel is to continue to be fertile, it cannot be solved at the expense of Sahelian trees."[3]

But the largest problem continues to be the fact that the program, aside from food for work, offers no short-term tangible rewards. In essence, the program asks the farmer to lend a helping hand to posterity, a noble enough cause, perhaps, but not nearly so critical as the question of where next month's meals are going to come from. In addition, critics have pointed out that if the objective of the program is truly to bring about a long-term commitment to tree planting on the part of the farmers, then tying farmer participation to food donations may be counterproductive. Worse, it could easily encourage increased dependency on handouts.

---

3. Steve Riese, Report of Peace Corps/Niger Forestry, 1978, p. 34.

The Dougui Forestry Project

The other major third party forestry effort in Chad in these years was the Dougui Forestry Project. Due to a drought in the early '70s, the growth in N'Djamena and traditional herding/grazing practices, the region north of the capital had become seriously deforested and was the victim of rampant soil erosion. In 1976 FAO, with funds from the UNDP, MISEREOR (a German international aid organization), and the Chadian government began a five-year reforestation/land use program. At the core of the effort was the concept of parcelles, plots of land to be set aside by each village for the purpose of regeneration/reforestation. After promising plots were identified by project staff, the village chief would be contacted for his cooperation. If the village agreed to support a parcelle, then work would proceed. The work would consist of establishing the parcelle boundaries and then erecting a thorn-branch fence around the perimeter. For their labor villagers would be paid in money from project funds and in food from the World Food Program. After the fence was in place a guardian would be appointed to patrol the parcelle, reinforcing the fence where necessary and keeping villagers and livestock out.

Once protected in this fashion, the parcelle would be left to regenerate its forest and vegetative cover free from exploitation. In addition the parcelle would be seeded with appropriate species to augment its natural composition. After three years the fences would be removed and, in accordance with a carefully drawn up land use management plan, villagers would be allowed to exploit various sections of the parcelle on a rotating basis, one section per year.

Part of the project also included training Chadian forestry agents in methods of natural regeneration and protection, surveying, and topographic measuring. In addition there was a scholarship provision for sending promising Chadian agents to the Forestry School in the Ivory Coast for two years of academic

study. Four to five PCVs were involved in this project from the outset, serving as the technical link between third party money and expertise and the actual on-site operation of the program.

Two years after the program began there had been considerable progress. Thirteen parcelles covering 900 hectares had been surveyed, mapped and fenced. A number of counterparts had received mapping and surveying training, a 60,000-seedling nursery had been established, and over 200 rural farmers had received food/money payments for their labor. Problems included a lack of attention to educating the farmers and thus ensuring the long-term success of the project, poor relations between the FAO experts and the villagers, and too much emphasis on achieving technical goals (precise mapping, etc.). The question of housing for the PCVs was also problematic; the Water and Forests Department was willing to house PCVs in N'Djamena, some 40 kms from Dougui, but would not construct houses at the site. The FAO eventually agreed to pay construction costs for housing at Dougui.

The December 1978 evaluation of the Peace Corps program in Chad found the forestry sector in good health. The CARE acacia project was called "a model of successful third party/Peace Corps cooperation,"[4] with much of the credit going to "CARE's understanding of the role a PCV can play in a development project." More generally the evaluators found that "forestry PCVs are addressing a real need, they work full-time, and their job descriptions match their actual jobs."

Reservations about Peace Corps' involvement in Chadian forestry efforts centered around the question of long-term commitment on the part of the government of Chad and the farmers. In essence, the Peace Corps and the donor agencies were running the show, with the Government of Chad's Department of Water and Forests giving moral support. The PCVs received almost no support

4. Peace Corps Country Evaluation, May 1979.

or supervision from Water and Forests. There was counterpart training taking place, but was there sufficient government interest and expertise to continue the projects when the donors pulled out? The fear was the program might be so deeply rooted in third party support that it would collapse in the absence of that support.

A further complication, as the evaluators noted, was that:

> All of these forestry projects were designed by outsiders . . . to help rural subsistence farmers, but [the farmers] were rarely, if ever, consulted about project design. It is difficult for these farmers to see the benefits of reforestation because it will take anywhere from three to fifteen years for the benefits to occur. Many farmers--several thousand in all--participate in forestry projects, but they work planting and protecting trees because they are paid with money and/or food from Food for Work and World Food Program stocks. They cannot influence project direction, they can only choose to participate or not.

Success and Failure

The Peace Corps forestry program in Chad, on the whole, was successful; that is, stated goals were achieved. The reasons for that success, plus an important caveat, are restated below:

- Generous third party support. The material, technical, and financial support provided by the various donor agencies assured that the project would get off the ground.

- The enthusiastic, if limited, support of the government. It couldn't do much, but the government was strongly in favor of the various projects undertaken by other agencies on its behalf and provided a large amount of moral support and cooperation.

- Small number of PCVs involved. There were apparently never more than nine or ten forestry PCVs in-country at a time, an appropriate number given the limited area in which the projects were being undertaken. (Even so, the 1978 evaluation complained of too many PCVs in the capital.)

- Presence of counterparts. The inclusion of Chadian counterparts not only give the program continuity, but also served to

> reassure the farmers that their government, and not just these donor agencies, was committed to the work they were being asked to undertake.

However, there was one weakness in the Chad program. In terms of acreage planted to gao and parcelles fenced off, the CARE and FAO projects were successful at the time the war broke out in 1979. What is not known, however, is how long these projects would have lasted once the handouts ran out. How much of the farmers' commitment was to the goals of the project and how much to the food and money? In other words, were the donations a means to an end or were they, in fact, the end itself?

7. Liberia Case Study

The Country

Liberia lies at the southwestern end of the western bulge of Africa. The size of Ohio, the country has three major geographic zones: a narrow coastal plain with white sandy beaches, shallow lagoons, and marshland; a dense rain forest; and a region consisting partly of plateau (in the east) and partly of low-lying mountains (in the west). The climate is tropical and humid, with two seasons, rainy and dry.

Culturally, Liberia's 1.6 million people are a mix of the 16 major African ethnic groups which settled in the area between the twelfth and sixteenth centuries, plus freed American slaves who began arriving in 1822. Prior to the arrival of the Americans there had been some contact with Europeans--Dutch, Spanish, English and French traders--but there was no serious attempt at colonization. In 1847 Liberia became the first independent republic in Africa. The government, until recently, was a democracy patterned on the American federal system with a popularly elected president, vice president and legislature. A recent army coup has deposed the elected government and a military council is currently running the country.

Three natural resources form the backbone of Liberia's economy: iron ore, rubber and timber. Rubber production was introduced by a British firm which sold out to Firestone, which began operations in 1926 and even today manages the world's largest single plantation at Harbel. Iron ore, first mined in 1951, is the country's major export. Timber

resources are vast, but were only targeted for development beginning in 1970. Much of the population still practices traditional agriculture.

The development of Liberia in this century has stressed the cultural integration of the various tribes and the descendants of the American settlers. This "unification program" was a central priority of Liberia's eighteenth president, William Tubman (1944-71) and has been, in the main, successful. An equally important priority was Tubman's "open door" policy created to lure private foreign investment into Liberia. Both policies were reiterated by Tubman's successor, President William Tolbert.

Forestry in Liberia: An Overview

Forestry in Liberia, unlike the other countries in this study, is a business. After iron ore, trees are Liberia's most abundant natural resource. Timber and related forest products are one of the country's three largest exports and, thus, one of the keystones of the economy. Over the years, however, the emphasis has always been on harvesting and marketing trees, not planting them.

The total forest area in Liberia is estimated at about 12 million acres, consisting mainly of broken high forest and closed high forest. Total concession holding is about eight million acres and an estimated four million acres is restricted as national forest. Concessionaires are restricted to a yearly allotment of four percent of total holding for logging.

It is now estimated that nearly 70% of Liberia's 1.6 million people live within or on the edge of forests and depend almost totally on forest resources for their food and fuel. The country's forests are thus centrally important, both to the livelihood of much of the population and to the economy and development of the country as a whole. Realizing the increasing dependency of the country on forest resources, the government, in 1970, took steps

to safeguard the exploitation of its forests and to begin a major reforestation effort.

At the core of this effort was a law requiring the various timber companies to establish one acre of plantation or pay $405.00 into the national reforestation fund for every boardfoot of timber removed and a commitment from the government to undertake its own reforestation program with FAO and World Food Assistance Program support. Specifically, the government set as its goals: 1) the establishment of ten tree nurseries, 2) the replanting of 24,000 acres, and 3) the establishment of a tree crop (rubber, cacao, coffee, oil palm, coconuts) program --all to be accomplished by 1973. In 1970 the Peace Corps was invited to participate in this effort.

Peace Corps Forestry Programs in Liberia

Early Efforts

Peace Corps' initial involvement in forestry in Liberia was minimal, with two or three Volunteers a year for the first three years, plus five Tree Crop Extensionists in 1971. One Forest Management Officer and a Forest Utilization Officer got the program off the ground in 1970. The former was assigned to Grand Gedeh County to do mapping, surveying, and planning, while the latter was stationed in Monrovia and was supposed to do everything, e.g. the job description had this individual involved in road construction, regeneration of timber stands, development of management plans for national forests, in-service training, education and research, species feasibility studies, and the establishment of local wood-based industries.

Two more foresters arrived a year later, in the summer of 1971, and two more the following summer. These last four PCVs had more clearly defined responsibilities and, as they were the precursors of a major new Peace Corps forestry program that was to begin in 1974, their work will be described in some

detail. These foresters were assigned to a district or regional forest office and were to serve as technical advisors to the local staff, which normally included one university-trained Liberian forester plus a number of largely uneducated workers. The district offices were responsible for the management of the forests in that area, which meant overseeing the work of the various timber and mining concessions. Specific duties included: reviewing the annual logging plans of each concession and supervising their execution, supervising and enforcing the replanting provisions of the 1970 reforestation law, establishing and managing the station's own nursery and plantation, improving the efficiency of office organization, and training/advising the non-professional staff.

Though the work was decidedly not village-oriented, there was one component that involved communities in the area of the stations. This was an inter-cropping scheme whereby village farmers would clear a plot of land (either government- or company-controlled) and plant rice. Interested farmers were then encouraged to plant trees, largely Gmelina arborea, in the rice fields. The idea was that since the farmers would have to protect the rice from being overtaken by weeds, so they would be protecting the seedlings at the same time, with no extra effort. The trees thus grown would belong to the farmers to use as they saw fit.

The Program Expands

The work of these Volunteers was deemed successful and the program was expanded. The expansion coincided with a 1973 decision by the government that the reforestation program begun in 1970 was still a sound idea, but that trained manpower was in critically short supply. The University of Liberia, for example, only graduated three foresters in 1973, one of whom went on to further studies, while the other two accepted high-paying positions in private industry. Peace Corps thus was asked to increase its commitment to the program. Beginning in 1974,

then, the Peace Corps forestry program in Liberia underwent rapid growth; 18 foresters arrived in that year and 21 the next. Their assignments were essentially the same as those of the trailblazers who came in 1971 and '72, i.e. technical advisers at the district and regional forestry stations, with a strong emphasis on skill transfer to the Liberians "who will ultimately manage and staff the Liberian forestry program."[1] One difference, however, was that by 1974 separate timber concession and GOL (Government of Liberia) reforestation efforts had been merged into one wherein the concessions, instead of doing direct reforestation work on their own, could pay money into a reforestation fund to be administered by CARE (though a program conceived by a PCV). In addition there was now more involvement from third parties, including the FAO, World Food Program and the German government.

The lesson of the expanded Peace Corps/Liberia forestry program seems to be that less is more. While individual volunteers were busy and successful, many of the foresters who went to Liberia during the period of 1974 to 1978 complained that their jobs were not viable; either a Liberian could do what they were doing or they were not wanted or needed at their sites. The 1975 Country Evaluation came to the same conclusion: "There are," the evaluators noted, "more volunteers than jobs."[2]

The problem was particularly acute with the group of 21 foresters who arrived in the summer of 1975. Forty-three percent of this group left during their first year, and of those remaining, over half requested site transfers. "There were more volunteers than the Liberian government could support," wrote a PCV from this group. Specific complaints centered around a lack of counterparts, no clearly defined job responsibilities, no transportation, and no supervision. The message seemed to

1. 1973 Project Description.

2. Liberia Country Program Evaluation, October 1975.

be that the forestry program was trying to run before it could walk.

The program has been scaled down somewhat in the last two years; only ten PCVs, for example, were requested for 1979. The work, in many cases, has been turned over to host country personnel as Liberia has been able to train more foresters of its own (particularly with the establishment of the Mano River Union Forestry Training School). Another change occurred in 1977 when the Bureau of Forestry was removed from the Ministry of Agriculture and became the Forestry Development Authority (FDA), a public corporation with sole authority for all reforestation efforts. The FDA has its own procurement department which, it is hoped, will cut down on delays in delivering materials to up-country projects.

Before concluding, a word needs to be said about the tree crop program in Liberia. As mentioned earlier, there were five tree crop PCVs in the country in 1971. Another group of seven was requested in 1973, four to work with rubber plantations and three to work with cacao, coffee, and oil palms. Whether these seven actually came is not clear. The 1975 Country Program Evaluation cited earlier contained as one of its recommendations the creation of a tree crop extension program. However, there is no evidence that this was done.

The Volunteers were apparently assigned to work with country tree crop agents to do basic extension work with local farmers--all part of the government's desire to maximize GNP through forest products. More specifically, their mandate included establishing nurseries, supervising the distribution and planting of seedlings, and instructing in the techniques of pruning, mulching, and the proper use of fertilizers. Those Volunteers in-country in 1971 reported to a visiting evaluator that they were enjoying their work and achieving some success.

The program is notable as one of the few examples of small-scale, village-level forestry work in Liberia. Aside from the inter-cropping scheme described earlier, the

forestry program in Liberia has yet to contain any strong village orientation.

Success and Failure

In essence, then, there really has been only one Peace Corps forestry program in Liberia, one which, on balance, seems to have been successful. The reasons:

- The rate of Peace Corps involvement was gradual. Peace Corps. wisely, did not inundate Liberia with foresters in the early '70s when the program was just getting off the ground. Instead, Peace Corps sent in two or three PCVs a year for three years until the role of the Volunteer (as well as the need) was clearly established.

- A genuine government commitment to the program. Liberia was serious about forest management and reforestation and proved it in generally strong support for the Volunteers. And even when that support sometimes wavered, in the middle '70s, it was more because the government's reach had exceeded its grasp, and not because the government no longer believed in the program.

- Easier objectives. In a comparative sense the objectives of the Peace Corps forestry program in Liberia were easier to achieve than those in some of the other countries in this study. Managing a forest is easier than growing one. Getting a company to do reforestation is easier than getting a farmer to. By contrast the watershed management mandate of the PCVs in Guatemala, Morocco and Nepal is a much more complicated, multi-faceted objective, with economic and social as well as technical overtones. It might be worth pointing out, however, that so long as replanting lags so far behind harvesting in Liberia, that country may have its own watershed conservation problem in the not-too-distant future.

Particular attention should be paid to the fact that the program in Liberia was seriously jeopardized by its sudden growth from 1974 to '78. This is an example of how an essentially sound program can be threatened by nothing more serious than sending over too many people. Better site selection, including careful discussions with officials at the local level, would probably have prevented this unwarranted expansion of the program.

8. Niger Case Study

The Country

Niger is a land-locked West African nation roughly twice the size of France. Over 90% of its 4.5 million people live in a thin strip along the southernmost part of the country, from Niamey in the far west to Lake Chad in the far east. Fully four-fifths of the country is taken up by the Sahara Desert and receives less than four inches of rainfall annually. This region is inhabited by nearly half a million nomads.

Development in Niger has been hampered by the country's single most outstanding feature, the lack of water. Traditional agriculture and livestock raising account for two-thirds of the gross national product. One crop, peanuts, is the source of over half of Niger's export earnings. In the early 1970s the country suffered from a serious drought which left thousands of livestock dead, tens of thousands of Nigerians near starvation, and the desert in control of vast new areas of the countryside.

Culturally, Niger reflects a mixture of ethnic groups, with the two largest, the Hausa and Djerma, doing most of the farming, in the southern plains, and various nomadic tribes, principally the Peul, Tuareg and Toubou, herding their cattle, sheep and goats to the north. Indeed, one of the more serious social/political problems facing the country is the question of how to create a sense of national unity among the disparate tribal groups. This is just one of the many challenges facing the Supreme Military Council which has ruled the country since the coup of 1974. The coup deposed

President Hamani Diori, Niger's first head of state, elected soon after the country was granted independence from the French in 1960.

Peace Corps has played a part in meeting Niger's development at challenges since the first group of Volunteers arrived in 1962. PCVs in Niger are assigned to Nigerian services and work under the direction of Nigerians. In collaborative projects, such as those with USAID, their principle accountability remains to the GON.

Forestry in Niger: An Overview

Forestry in Niger is an attempt to keep the desert in its place. The country's harsh climate wages a constant battle against its natural resources, and the resources, including trees, usually lose. The problem is compounded by increased population growth. During the last 100 years the population has grown from 750,000 to nearly 5 million and the corresponding need to put more land under cultivation has led to an expansion in the number of villages from 1500 to over 9000. The result has been a steady and progressive manmade deterioration of the soil and forest resources. Periodic droughts accentuate the process.

Peace Corps Forestry Programs in Niger

Early Efforts

Not surprisingly, the major emphasis of the Government of Niger (GON) Department of Water and Forests is reforestation. This effort began in the fall of 1964 with the arrival of an AID technician. Peace Corps' involvement in forestry in Niger began at the same time with the assignment of two PCV foresters to work as assistants to the AID expert. This team was primarily concerned with drawing up plans for a nationwide reforestation program, though they did do some nursery work and species experimentation. After this foundation had been laid, Peace

Corps, in 1966, sent in its first group of forestry Volunteers. The program consisted of a small number of foresters (no more than three or four) and a larger number of generalists with three months of skill training. The foresters were assigned to Niamey, the capital, and worked out of the Department of Water and Forests headquarters. The generalists were assigned to rural substations and were to be in charge of each station's reforestation program. The project had four main goals: 1) general reforestation, 2) windbreak construction, 3) the cultivation of fruit trees, and 4) the establishment of village firewood plantations. The idea was that with the technical assistance of the foresters, the generalists would carry out (and teach) all aspects of reforestation, including establishing a nursery, planting, terracing, and watering. They would work with the minimally trained counterparts assigned to the local Water and Forests station and also supervise local laborers. Because of their limited expertise, however, it was expected that their major role and contribution would "be through their abilities in organization, administration and personal relations, rather than forestry."[1] The program continued in this mold for approximately three years.

Peace Corps identified some problems as well as some good points with the program in a 1968 Program Memorandum: "Our participation [in reforestation work] is limited since A.B. generalists cannot be made to achieve the prerequisite degree of technical knowledge during three months of agricultural training. The program is attractive, however, since counterparts can be trained and there is a wide area of direct contact with the population."

The program was not expanded. It appears that no more generalists came after 1967, and only a handful of foresters, two or three at a time, were in-country throughout 1968, 1969 and 1970.

---

1. Training Information Guide, Niger V, Summer 1966.

The Decade of the '70s

Beginning in 1970, the program in Niger took a new direction. In essence the change was that foresters were now being sent to do what generalists had previously been asked to do. Peace Corps/Niger began requesting larger numbers of foresters and assigning them to various Water and Forests substations. Here they worked with the staff of the substation on nursery and seedling development, establishing public forests and doing various types of species research and development work. The work was "very nebulous," said one PCV. "We were supposed to go out and do what needed to be done."

What needed to be done varied from place to place. Some Volunteers were involved in sand dune stabilization, some in natural fencing, some in inter-cropping. In Tchin Tabaraden, for example, the problem was serious livestock overgrazing near local wells. The animals would come to drink and then feed off the surrounding vegetation. Over a period of time the area would become barren and the animals would starve. A joint effort (with CIMADL, a French church group, and AID) was mounted to fight the problem. Grass seed was gathered from other areas and then planted in fenced-off enclosures near the wells. Trees were also planted to serve as windbreaks and prevent soil erosion.

The Zinder Project

In Zinder one of the problems was a lack of shade trees for the market area. The Agency for International Development (AID) promised to provide money for watering the trees if someone would plant them and get them to grow. The soil was very poor, and only the healthiest trees could survive. The local PCV hit upon the idea of burying sewage in the holes where the seedlings were planted, thus guaranteeing the source of fertilizer. And so the Zinder Shade Tree Project was born. But the project eventually became as renowned

for its flaw as for its initial success. The problem was that it was essentially an AID/Peace Corps effort that had not included Zinder city officials to any great degree. They were pleased to have the trees and the shade, but their longterm commitment to the project had never been explored, much less secured. Thus, two years or so into the project, as AID prepared to turn the responsibility for the project over to the community, it became clear that city water officials didn't necessarily consider keeping trees alive the best way to use Zinder's water.

The Village Forest Program

Another important part of the Peace Corps forestry effort in the early '70s was the Bois du Village (village forest) program. Though PCVs were assigned to Water and Forests substations and did much of their work there, they were also asked to help get the village forest program off the ground. This program, partially sponsored by AID, encouraged villages to start their own nurseries and grow seedlings for eventual planting in a village forest. The seeds and seedlings would come from the district substation and PCVs/Water and Forests agents would provide the necessary training and technical advice. The village forests serve a number of purposes: as a source of firewood and fodder, as a windbreak against erosion, as a sand dune stabilization mechanism, and, in the case of certain fruit trees, as a food source.

Many Volunteers were involved in this work. The major problem was fencing--getting it and maintaining it. Customs duties on imported materials were high, but getting the fencing was only half the battle. The other half was getting villagers to respect it. It was not uncommon, particularly during the Sahelian drought of 1971-74, for villagers to cut the wire at night and allow their animals to graze on the plantation until morning. Eventually, in later projects, CARE came up with some money to pay for guards. The new approach to Peace Corps forestry

efforts in Niger took three or four years to become well established. There were, naturally, a number of problems that had to be worked out. At the third annual meeting of Peace Corps/Niger and the Department of Water and Forests in April 1973 PCVs complained of poor site selection and a general lack of support from Peace Corps/GON. This difficulty was resolved by appointing a PCV program coordinator who could do more accurate site surveys and establish and maintain better Peace Corps/GON relations. The coordinator, according to the notes of a similar meeting held one year later, also took care of another Volunteer complaint--the lack of contact between Peace Corps and AID.

Perhaps the most common problem PCVs faced was that of transportation. To do Bois du Village, the Volunteers needed to get to the village. They had access to the Department of Water and Forests' vehicles, but the department's gas allowance was constantly being cut because of rising gas prices. Another complaint that PCVs had, in the wake of the Zinder Shade Tree Project experience, was that if they were going to be expected to come up with small-scale self-help projects at their site (apparently an objective that was encouraged) then they wanted better training in how to design and write a project. Such training was incorporated into later programs.

Another problem during those drought years was the lack of water throughout the country. As the drought continued, the water table dropped and water for any purpose became increasingly scarce. PCVs from the wells program proposed the use of more small-bore wells which perforate the water table to a deeper level.

Forestry in Niger in the last half of the '70s built upon the good foundation laid down in the first half. No major changes were made, though two new themes gradually became dominant: 1) the failure of large-scale, top-down development (and the corresponding need for more emphasis on village forestry) and 2) the importance of collaborative forestry efforts. Peace Corps contin-

ued to supply forestry Volunteers in the same numbers (10 to 15 a year) and assign them to the same positions in local Water and Forests substations, but more often than not the PCVs were involved in joint efforts at the community level.

One early example was the AID gao (Acacia albida) project, actually begun in early 1974. An AID team had visited Niger and recommended planting gao in millet fields to increase soil fertility and crop production. Where practicable, this project was incorporated into local Water and Forests work and PCVs thus became involved. Gao is attractive for a number of reasons: its leaves fall during the rainy season and thus they do not shade the millet while it's growing; during the dry season, after the harvest, the gao drops its leaves and thus protects the soil from erosion and also acts as a fertilizer; and gao also has the advantage of being native to the area.

Typical of other projects undertaken during these years was the Magaria Village Woodlot program funded by CRDI (Centre du Recherche pour le Developpement Internationale) and the N'Guigmi Afforestation Project. The former, using mainly neem (with its near-90% survival rate) involved establishing two- to four-hectare woodlots in 19 different villages. The later project, on the former shores of the receding Lake Chad, was an effort to use this rich lake-bed soil to establish a forest before the land was overtaken by farmers. Prosopis juliflora was the primary species used and the PCV involved reported initial success.

At a February 1980 Sahel Reforestation Workshop, Peace Corps/Niger renewed its commitment to village-level collaborative forestry programming. Workshop participants--AID, Peace Corps, and nationals from participating Sahelian countries--outlined a development approach that would combine the money and technical expertise of AID, the grass roots presence and skills of PCVs, and the innovativeness of various Private Voluntary Organizations (PVOs) with the close cooperation of

host country Water and Forests officials to attack the problems of the region in a comprehensive and integrated fashion. An important part of this new commitment included using AID money to train more Nigerians in forestry with PCVs serving as a temporary stopgap. Their ultimate goal, the countries agreed, was to shift the responsibility for environmental management to local communities and thus free their foresters to concentrate on solving technical challenges.

For Niger specifically, agreement was reached at the workshop that the current Peace Corps/AID/Water and Forests/PVO dune stabilization projects should continue and be expanded. The projects used millet stalks as dead fencing to cut wind currents on the surface of dunes. Both exotic and native species are then planted within the stalk palisades. During the first three years of the program the goal will be to reclaim 50 hectares a year in each of five districts.

Success and Failure

After a shaky start in the mid- and late '70s, Peace Corps forestry efforts in Niger must be counted a success. Among the reasons are these:

- The careful pacing of Peace Corps involvement. Peace Corps, wisely, did not flood the embryonic Water and Forests Department with large numbers of volunteers. Instead, PCVs were gradually introduced as some of the kinks in the program were being worked out. Thus, large-scale failures and the subsequent bad faith they can cause were avoided.

- Consistent programming over a period of years. Throughout the late '60s and all of the '70s Peace Corps programmed Volunteers into essentially the same positions. The nature of the work changed from time to time, but the overall structure with which the PCVs worked stayed the same. Thus the role of the Volunteer became well understood by the Water and Forests people and by the local communities and by the Volunteers themselves.

- The active involvement of third parties. The financial, technical and material support provided various Peace Corps pro-

80

jects over the years often met key project needs that Peace Corps itself could not meet.

- Regional cooperation. Part of the reason for the success of Peace Corps/Niger's forestry programs, particularly recently, was due to the high degree of cooperation and information sharing between countries in the Sahel. For the last three years regional forestry conferences with PCVs from Niger, Chad, Upper Volta and Ivory Coast have been held and serve as valuable forums for discussing common problems and airing possible solutions. This kind of cooperation has no doubt strengthened forestry efforts in the countries involved.

9. Future of Peace Corps Forestry Program

Each of the preceeding eight case studies concluded with a section entitled Success and Failure. In these summaries, points were brought out to illustrate why some projects were successful and others were not. Although each project was different depending upon the given conditions, it is clear that the same kinds of factors influenced each forestry project. Future Peace Corps involvement in forestry programs also depends upon these factors and on others unique to individual countries. This chapter examines each factor identified in the case studies both to aid in the evaluation of current Peace Corps efforts in forestry and in the planning of future forestry programs. It is hoped that programmers in the field and planners of future Peace Corps programs will benefit from the evaluation of those factors found to be critical to the success of past Peace Corps forestry programs.

Factors that Determine Success

Among the factors that determine the success of Peace Corps programs in forestry are the amount and kind of support given to projects and volunteers from the host country government and other agencies, the timing of volunteer placement in forestry projects, the need for such projects, and the support of the project by local communities. These and other factors influence forestry programs to such an extent that in many cases the factors become criteria for determining whether or not Peace Corps should be involved with the program.

The following factors should be considered both in the planning of future forestry efforts and in evaluating current Peace Corps forestry programs.

Support from the Host Country

The first criterion to be considered in deciding whether or not Peace Corps should become involved in forestry projects should be the extent of commitment to the project by the host country government. Is the social or economic issue the proposed program would address an important priority of the host country government? If it is not, can Peace Corps realistically expect more than token support from that government? Even if the problem the proposed program would address is an important government priority, is the government convinced that this particular project (which could be either Peace Corps' or the host country's) is the best way to attack the problem? In Morocco, for example, agricultural production was the government's number one priority, yet DERRO, which attempted to deal with that very issue, received only lukewarm support. Government commitment to a problem does not assure government commitment to a particular solution.

An aspect of the government's commitment to forestry projects is the availability of counterparts. Many of the successful projects studied in this report did not include counterparts (and some of the failures did). Clearly counterparts are not essential to a healthy project. They can, however, make a weak project more appealing, and an appealing one even more attractive. Other things being equal, the opportunity to work with and train a counterpart gave PCVs more confidence that their work would make a difference and not be forgotten once they left. More importantly, leaving behind a trained forestry worker to carry on the project and initiate new ones may provide long-term benefits to the country that are many times as significant as the immediate physical accomplishments the PCV may have made in his or her two-year visit.

Support from the Peace Corps

A second consideration for involvement in forestry is the amount of commitment that Peace Corps gives to the project. Peace Corps' support starts at the planning stage when staff members meet with host country agency staff and identify possible positions for forestry volunteers, and goes on to the recruitment and training stages. Programmers must discuss the proposed volunteers' role with the people who are requesting (or will be getting) the PCVs. What exactly will the PCVs' responsibilities be? The point here is that promises or commitments at the ministerial or even the provincial/district level are fine, but there is no substitute for checking out a PCVs' job at the actual location where it will be performed.

In addition to determining whether or not there is work for the PCV, staff should ascertain as precisely as possible the exact nature of the work so a volunteer with appropriate skills can be recruited. In Chile the foresters who were expected to back up the generalists were in fact overqualified and many became bored. The work the volunteer will be expected to do should be described so as not to create erroneous expectations. Whether or not there is actually work for PCVs to do when they get to their sites is sometimes not as important as the fact that the job awaiting them is the one they expected. An overqualified or underqualified PCV is, in many instances, worse than no PCV at all. It is a frustrating experience for the individual involved and reflects poorly on Peace Corps' credibility.

Legitimacy of a Need for Peace Corps' Involvement

The third criterion for successful forestry projects is the legitimacy of a need for Peace Corps' involvement. A legitimate host country need for forestry workers does not, by itself, constitute justification for a Peace Corps program. Peace Corps should get involved in those efforts where its particular

brand of expertise is most appropriate. It does not truly benefit a country if PCVs are involved in a program where FAO technicians would be more effective, or, as was clear in the case of the surveyors program in Morocco, where host country nationals would be more appropriate.

Support from Other Agencies

A fourth criterion for deciding whether or not to get involved with forestry projects is the availability of support from outside agencies. Since Peace Corps, by law, cannot offer financial or material support to a country, programmers should be careful not to get involved in a program that needs such support but has no way to get it. If all a project needs is trained manpower, it may be appropriate for Peace Corps to lend a hand, but if a project needs money and materials, and there is no one on the scene to provide them, then that stone may best be left unturned. If, on the other hand, other organizations are in a position to provide the support to a project that Peace Corps cannot supply, a collaborative effort may be appropriate. For example, the INAFOR program in Guatemala, which combined Peace Corps efforts with support from CARE, OXFAM, OAS and other organizations, appears to have been very successful, as was the Dougui Forestry Project in Chad that combined Peace Corps, CARE, FAO and UNDP assistance.

History of Host Country's Involvement in Forestry

One very important consideration in determining whether to work in forestry projects is the history of the host country's involvement in forestry. Has the host country undertaken a forestry program before? If so, what were the results? Why was it stopped? How is this new program better? Peace Corps should not rush to get involved in a host country program that does not have its feet on the ground. The Morocco DERRO project again comes to mind. While DERRO was grasping for an identity and a modus operandi, PCVs stood by with little to do. How much better it might have been if Peace Corps

had waited until the role of the Volunteer (if he/she could in fact play any) was clearly defined. (The argument, of course, can be made that it is often precisely at that point when a program is struggling to get off the ground that Peace Corps can make its greatest contribution. This, too, is true).

Careful attention should be paid to how many PCVs are requested for a particular program. In Liberia, for example, the forestry effort was seriously compromised when a relatively small program was suddenly doubled in size. If the workload at the proposed sites is checked out ahead of time, this problem can be avoided. The size of the country's need should not determine the size of the program; rather, that determination should be based on the government's ability to support the Volunteers. Liberia may, in fact, have <u>needed</u> all of those PCVs, but the country wasn't yet <u>ready</u> for them.

Along these lines, it might be interesting to draw a comparison between the INAFOR project in Guatemala and the DERRO program in Morocco. Both were village-level, small-scale land use and conservation programs aimed at a specific region and population in their respective countries. Why did INAFOR succeed where DERRO failed and what are the lessons for Peace Corps programming? At least four answers suggest themselves:

- INAFOR, unlike DERRO, was an established program at the time Peace Corps/Guatemala became involved.
- INAFOR, unlike DERRO, did not depend so heavily on the cooperation of other ministries.
- The skills of the INAFOR PCVs were more specific than those of the DERRO volunteers and their roles were thus more readily understandable. A DERRO volunteer could probably have done what an INAFOR PCV did, but the community would have needed more convincing.
- DERRO did not have as strong a counterpart orientation as INAFOR. The DERRO agent was not so much someone who would carry on after the PCV left as he was someone who had done quite well long before the PCV came!

The Possibility of Short-Term Benefits

In forestry programs in particular, where the results of the work are so long in coming, it is important that there be some immediate or short-term incentive to reward village participation. The Food for Work component in the INAFOR program or the projected marketing scheme in the Philippines agro-forestry project come to mind. Villagers are generally willing to work to help improve their lot, but the advantages of a reforestation program are often clearer to the foresters than to the farmers. If the villagers are going to be asked to take risks (as they see it), it is only reasonable that they be offered an incentive.

In those countries where forestry projects were judged most successful, the projects contributed to the villagers' economic well-being. In Chad, for example, nine nurseries produced a total of 300,000 gao seedlings which, when intercropped by 2,000 farmers, increased crop yield by 15%. When gasoline prices in the Philippines rose over 30%, the government countered with moves to increase fuelwood and gasahol production that directly benefitted the ipil-ipil project. In contrast, Peace Corps efforts in forestry had limited success in Nepal, where Peace Corps and host country goals were divergent and the nationalization of forest land served mostly to further impoverish the village people.

The Amount of Local Interest and Commitment

In those cases where the Volunteer will be stationed at the local level, it is important to determine how much local support and understanding there is for the project. Frequently a project is enthusiastically supported at the ministerial level, but is not at all popular or even understood at the actual job site. The Nepal Volunteers in the soil and water conservation project, for example, encountered considerable resistance to fencing because villagers feared loss of access to their own forest land. The best way to ensure community support

is to involve villagers in the planning of the project. For any project to be successful, it must be seen to be meeting needs the villagers themselves have identified.

References

Bennett, Meridan. 1965. Nepal Country Evaluation. Peace Corps, Washington, D.C.

Centro Técnico de Evaluación Forestal. 1943. Programa para manejo y conservaction de los recursos suelo, vegetacion y aqua de la region del altiplano en Guatemala. Sector Publico Agricola, Centro Técnico de Evaluación Forestal de la República de Guatemala.

Cornell University. 1965. Peace Corps Peru UCD-Forestry-ETV Projects Syllabus.

Costa Rica Forestry/National Parks. Summer 1971.

Edds, David. 1980. Project Description, Peace Corps/Nepal Community Forestry Project.

Edds, David. 1980. CFDTP Project Description.

Eschner, A. R. 1974. Report on Watershed Management Needs in the Altiplano of Guatemala. SUNY College of Environmental Science and Forestry, Syracuse, N.Y. (SUNY ES&F).

Freeman, Peter H. 1979. Forestry in Development Assistance. Office of Science and Technology, Development Support Bureau, A.I.D.

Gava, K. I. 1974. Forest Protection in Chile.

Gildesgame, Mike. 1976. Trip Report. Smithsonian Institution-Peace Corps Environmental Program. Washington, D.C.

Gulick, Frances. 1979. Fuelwood and Other Renewable Energies in Africa, a Working Inventory of Current Programs and Proposals. Overseas Development Council.

Hoskins, Marilyn W. 1979. Women in Forestry for Local Community Development --a Programming Guide. Office of Women in Development, A.I.D., Wash-

ton, D.C.

Jay, Robert, and Alfred Mathieu. 1970. Morocco derro: overseas evaluation. U.S. Peace Corps, Washington, D.C.

Love, Kenneth. 1963. Morocco Country Evaluation. Peace Corps, Washington, D.C.

McGuire, Robert. 1964. Morocco Country Evaluation. Peace Corps, Washington, D.C.

Office of Programming and Training Coordination. 1979. Peace Corps Forestry Initiative. Peace Corps, Washington, D.C.

Organization of American States. 1972. A Program for the Management and Conservation of soil, plant and water resources of the Altiplano of Guatemala. Technical Center of Forest Evaluation, Republic of Guatemala.

Peace Corps. 1978. Notes of the 1978 Peace Corps Forestry Conference, Niamey, Niger, October 1978.

Peace Corps. 1975. Liberia Country Program Evaluation, October 1975.

Peace Corps. 1974. Meeting of the Peace Corps/Niger and Niger Waters and Forest Service.

Peace Corps. 1973. Third Annual Meeting of Peace Corps/Niger and Niger Waters and Forest Service. April 11-15.

Peace Corps. February 1973. Projects in Africa.

Peace Corps. 1971. Morocco Country Plan.

Peace Corps. 1970. Peace Corps/Morocco Program Description.

Petriceks, Janis. 1976. Report on Consulting Trip to Nicaragua under the Technical Assistance Consortium Contract with the Peace Corps. SUNY ES&F.

----------. 1974. Report on Consulting Trip to El Salvador under the Technical Assistance Consortium Contract with the Peace Corps. SUNY ES&F.

----------. 1974. Report on consulting trip to Nicaragua under the technical assistance consortium contract with the Peace Corps. SUNY ES&F.

Richards, Norman A. 1975. Report on My Third Technical Visit to INAFOR/Peace Corps Program on the Altiplano of Guatemala. SUNY ES&F.

----------. 1974. Report on Second Technical Visit to CETEFOR/Peace Corps Program on the Altiplano of Guatemala. SUNY ES&F.

----------. 1974. Report on Technical Evaluation Visit to CETEFOR/Peace Corps Program in the Altiplano of Guatemala. SUNY ES&F.

----------. 1974. Field Manual for Forest Resources Management in the Altiplano of Guatemala. SUNY ES&F.

Riese, Steve. 1978. Report of Peace Corps/Niger Forestry 1978.

Smithsonian-Peace Corps Environmental Program. 1977. Peace Corps Volunteer Conference on West African Parks and Wildlife. Smithsonian Institution, Washington, D.C.

Spears, John S. 1978. The Changing Emphasis on World Bank's Forestry Lending. A summary of recent experiences and problem areas of relevance to the eighth world foresty congress sessions concerned with "forestry for world communities".

Tatge, Bill. 1966. Morocco Evaluation. Peace Corps, Washington, D.C.

Tisdale, Edwin W. 1975. Report on Second Visit to the INAFOR-Peace Corps Project in the Altiplano Region of Guatemala. University of Idaho.

Ulinski, Carol A. 1979. Fuelwood and Other Renewable Energies in Africa. Overseas Development Council.

----------. July 1979. A Brief Summary of U.S. Supported Programs. Review of Bank Financial Forestry Activity FY79.

University of Minnesota. 1970. Peace Corps Intern Training Program Morocco. Final Report.

University of Washington. 1969. Final Report, Chile Forestry and Fisheries. Peace Corps, Washington, D.C.

University of Washington. 1967. Chile Forestry Community Development. Peace Corps, Washington, D.D.

Weber, Fred, D. Garner, R. Gaanda. 1976. Peace Corps/Morocco Country Pro-

gram evaluation. Peace Corps, Washington, D.C.

Weber, F.R. 1971. Conservation and Forestry Manual: Niger.

Personal Communications

Name	Country Involvement
Morocco	
Tom Birch	
Kenneth Love	
Robert McGuire	
Tim Resch	
Nepal	
Richard Calnan	PCV 75-77; worked as a Forester for the Ministry of Forests
Broughton Coburn	PCV 73-75, 76-78; working in agriculture reforestation and with biogas digesters
Eric Dinerstein	PCV 75-77; conducted wildlife ecology research, in 1977 trained 15 new PCVs in watershed management
Bert Levenson	PCV 77-79; worked in watershed management on a Peace Corps/UNFAO cooperative project
Philippines	
Michael Baffery	PCV 73-75 in National Parks Program; aerial photograph interpretation
Mel Beetle	Peace Corps Training Officer late 60's early 70's
Michael Benge	USAID/Philippines early 70's; M.S. from U.P. College of Forestry, Los Banos
Bruce Sims	PCV 72-75; Forestry research and watershed management at U.P. College of Forestry at Los Banos

Name	Country Involvement
Chile	
Rich Hildener	PCV 69-71; was a fire specialist in a group of 18 foresters
Don Hunsaker	
David Joslyn	
Janis Petriceks	With the University Technical Assistance Consortium for Peace Corps Forestry and Environmental Programs in Latin America
Norm Richards	
Rich Saunier	Coordinator of Latin American Programs for Peace Corps 70-75
Steven Springer	PCV 68-70; coordinated reforestation projects on farms
Ken Turnbull	PCV 66-72
Jeff Wartluff	PCV 65-67; taught at the Technical University at Madadero
Guatemala	
Roger Canfield	PCV 77-80; worked in reforestation and soil conservation and established nurseries for Cyprus
Jim Culbert	PCV 75-77; established tree nurseries and coordinated a Forestry rural extension program
James Doctor	PCV 77-79; worked in a 5+ year Natural Resources Conservation program (CNR) that included forestry and agricultural projects
Robert Flannery	Worked with 25 PCVs in erosion control in the early 70's
Sam Lammie	PCV 77-79; set up nurseries in a semi-arid area and did reforestation and soil conservation work
Dr. Norman Richards	Worked on the University Technical Assistance Consortium for Peace Corps Forestry and Environmental Programs in Latin America

Name	Country Involvement
Guatemala (Cont'd.)	
Robert Rowell	PCV 77-79; forestry extension, soil conservation and tree nursery
Stuart Williams	PCV 77-79; worked in the CNR program involving soil conservation and improving agricultural techniques
Chad	
Fred Weber	Forestry consultant that has worked on Peace Corps, USDA, USAID, CARE and Club du Sahel projects
Liberia	
Rich Johnson	PCV 71-73; doing nursery and plantation forestry with teak and cottonwood
Bob Sebastian	PCV 75-77; regulating commercial forestry
Niger	
Jim Demayo	PCV 74-76; Nursery production of "GAO"
Vern Farrell	PCV 73-76; did experimental work with native and exotic species
Gary Grosenick	PCV 72-74; worked on "GAO" intercropping with millet
Rex Halloway	PCV 73-76; worked with cashew production and erosion control through reforestation
Gerry Hawkes	PCV in early 70's; worked with shade trees

TABLE 1

LIST OF MAJOR PEACE CORPS FORESTRY PROJECTS BY REGION AND COUNTRY

Latin America and Caribbean

Country	Date of Initiation	Type of Program	Size (# of Volunteers)	Duration	Data Base	Comments
BELIZE	1976	silviculture grafting pine	small <5	3 years	poor	
BRAZIL	1976	Teaching forestry reforestation	small <5	3 years	poor	
CHILE	1966	soil analysis, forest entolmology, watershed management, teaching forestry nursery, wood technology	large 200+	to present	good*	University of Washington
COLOMBIA	1964	watershed management, soil conservation, reforestation, silviculture, nurseries	medium 25+	to present	fair*	
COSTA RICA	197.	forest extension, reforestation, plantation, nurseries	medium 25+	to present	fair	
DOMINICAN REPUBLIC	1964	technical training nurseries	small 6-12	6-7 years	poor*	
ECUADOR	1969	nurseries, afforestation, regeneration	medium 25	10 years	poor*	

*denotes documentation available from individuals working in programs.

BEST COPY AVAILABLE

Latin American and Caribbean (continued)

Country	Date of Initiation	Type of Program	Size (# of Volunteers)	Duration	Data Base	Comments
EL SALVADOR	1974	forest resources, watershed management, soil erosion	medium 10-15	4 years	fair	
GUATEMALA	1973	training counterparts, operating nurseries, reforestation, soil conservation, bench terracing, watershed management	75-100	to present	excellent	CARE
HONDURAS	1973?	training, watershed management, nurseries, inventory, bench terraces, erosion control, fire protection, forest management, social and agroforestry	50-75	to present	fair	FAO
NICARAGUA	1975?	fire protection, watershed management, soil conservation	25-30	to present	fair	UNDP/FAO
PARAGUAY	1975?	forest extension, reforestation, nurseries	small 5?	to present	poor	
PERU	1965	teaching forestry inventory, reforestation	50-75	to present	poor	
VENEZUELA	1976?		small <5	?	poor	

NANEAP

Country	Date of Initiation	Type of Program	Size (# of Volunteer)	Duration	Data Base	Comments
FIJI	1975?	reforestation	small <5	?	poor	
MALAYSIA	1974	teaching, research logging, soil erosion	small <15	to present?	poor	
* NEPAL	1976	soil conservation, watershed management, teaching	small 9	3 years	fair	
PHILIPPINES	1973		small 7	to present	good	UNDP

* Updated information

NEPAL	1978-81	forest and fodder assessment to be used in afforestation project for Begnas Tal area, conservation education/media production, community reforestation, demonstration plots, cooking stove improvement		to present	updated from country	

AFRICA

Country	Date of Initiation	Type of Program	Size (# of Volunteers)	Duration	Data Base	Comments
GHANA	1976	silverculture teaching	small ?	3 years	poor	
* LIBERIA	1971	nurseries plantation	small <15	4 years	poor	
MOROCCO	1968	reforestation, teaching	medium 50-70	8 years	good	University of Minnesota
NIGER	1964	nursery, land inventory, firewood, windbreak, shade trees, inventory reforestation	large 75+	7 years	good*	
* UPPER VOLTA	1976	reforestation	small <10	?	poor	Affiliation UNDP/FAO

* Updated information

LIBERIA	1978-1981	surveying, nursery planting trials, teaching	5	to present	updated from country	PC plans to maintain at current level for the short run; program "Liberianized" to large extent; FDA contacts with World Bank, ADB, West Germany
UPPER VOLTA	1978-1981	village woodlots/wood stoves, agro-forestry, establishment of nurseries at village, sub-regional and regional levels, natural resource and fuel consumption inventories	25-30	5-7 years	updated from country	Collaborative projects with AID, VITA, AFRICARE, FAO, and Dutch, Swiss and German governments.

TABLE 2

U.S. Non-Profit Organizations in Development Assistance
Working in Forestry Related Projects

Organization	Country	Type of Program	Size	Duration	Data Base
Accion International AITEC	Costa Rica	Integral Rural Development Program - intensification agricultural program - crop diversification - wood lot farming and watershed management	25 farmers	1976	good
Auroville Association	India	- tree planting for fuel - erosion control	village level	1968	fair
Mennonite Central Committee	Haiti Grande Riviere du Nord	- soil and water conservation projects - reforestation/nurseries (ipil ipil)	34 communities 3 Haitians 49 communities	1959	fair

U.S. Non-Profit Organizations in Development Assistance: Forestry Projects

In accordance with the Forestry case studies scope of work (Item I.B.), TransCentury Corporation reviewed documents from UNFAO, World Bank and over 30 non-profit organizations working in development assistance (Appendix I). From this effort, three projects were identified as relevant to this project possibly deserving further study under this contract (Table 2).

Since 1961 when the Peace Corps was created, more than 80,000 U.S. citizens have served as Volunteers in developing countries, living and working among the people of the Third World as colleagues and co-workers. Today 6000 PCVs are involved in programs designed to help strengthen local capacity to address such fundamental concerns as food production, water supply, energy development, nutrition and health education and reforestation.

Loret Miller Ruppe, Director
Everett Alvarez, Jr. Deputy Director
Richard S. Abell, Director, Office of Programming and Training Coordination

Peace Corps overseas offices.

BELIZE
P.O. Box 487
Belize City

BENIN
BP 971
Cotonou

BOTSWANA
P.O. Box 93
Gaborone

CAMEROON
BP 817
Yaounde

CENTRAL AFRICAN REPUBLIC
BP 1080
Bangui

CHILE
Casilla 27-D
Santiago

COSTA RICA
Apartado Postal 1390
San Jose

DOMINICAN REPUBLIC
Apartado Postal 1414
Santo Domingo

EASTERN CARRIBBEAN
Including: Antigua, Barbados, Grenada, Montserrat, St. Kitts-Nevis, St. Lucia, St. Vincent, Dominica
"Erin Court"
Bishops Court Hill
P.O. Box 696-C
Bridgetown, Barbados

ECUADOR
Casilla 635-A
Quito

FIJI
P.O. Box 1094
Suva

GABON
BP 2098
Libreville

GAMBIA, The
P.O. Box 582
Banjul

GHANA
P.O. Box 5796
Accra (North)

GUATEMALA
6a Avenida 1-46
Zona 2
Guatemala

HONDURAS
Apartado Postal C-51
Tegucigalpa

JAMAICA
9 Musgrove Avenue
Kingston 10

KENYA
P.O. Box 30518
Nairobi

LESOTHO
P.O. Box 554
Maseru

LIBERIA
P.O. Box 707
Monrovia

MALAWI
Box 208
Lilongwe

MALAYSIA
177 Jalan Raja Muda
Kuala Lumpur

MALI
BP 85
Bamako

MAURITANIA
BP 222
Nouakchott

MICRONESIA
P.O. Box 336
Saipan, Mariana Islands

MOROCCO
1, Rue Benzerte
Rabat

NEPAL
P.O. Box 613
Kathmandu

NIGER
BP 10537
Niamey

OMAN
P.O. Box 966
Muscat

PAPUA NEW GUINEA
c/o American Embassy
Port Moresby

PARAGUAY
c/o American Embassy
Asuncion

PHILIPPINES
P.O. Box 7013
Manila

RWANDA
c/o American Embassy
Kigali

SENEGAL
BP 254
Dakar

SEYCHELLES
Box 564
Victoria

SIERRA LEONE
Private Mail Bag
Freetown

SOLOMON ISLANDS
P.O. Box 547
Honiara

SWAZILAND
P.O. Box 362
Mbabane

TANZANIA
Box 9123
Dar es Salaam

THAILAND
42 Soi Somprasong 2
Petchburi Road
Bangkok 4

TOGO
BP 3194
Lome

TONGA
BP 147
Nuku'Alofa

TUNISIA
8, Ave. Louis Braille
Tunis

UPPER VOLTA
BP 537-Samandin
Ouagadougou

WESTERN SAMOA
P.O. Box 680
Apia

YEMEN
P.O. Box 1151
Sana'a

ZAIRE
BP 697
Kinshasa

BEST COPY AVAILABLE